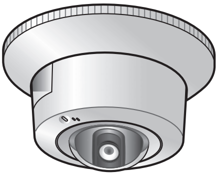


Panasonic®

Operating Instructions

Network Camera

Indoor Ceiling Use Only

Model No. **BB-HCM403A**

(PoE Ready)



Please read this manual before using, and save this manual for future reference.

Panasonic Network Camera Website: http://www.panasonic.com/netcam
for customers in the USA or Puerto Rico

Main Features

Dome-shaped Camera for Neat Mounting on the Ceiling

This is a dome-shaped camera with integrated mounting hardware ideal for indoor ceiling use. Conventionally, to mount our cameras (other than the optical zoom type[*1]) on the ceiling, a separate dedicated stand was necessary.
The integration of the mount equipment and the neat design of the dome shape allow you to mount the camera anywhere conveniently.

PoE[*2] (Power over Ethernet) Compliant with a Power Receiving Device Integrated

The camera is compliant with PoE (IEEE 802.3af) standards, contains a power receiving device that enables it to receive power via an Ethernet cable, and supports PoE[*2]. This allows you to mount the camera even if there is no power outlet near the installation position, and saves the cost of installing a new power outlet. In addition, since power can be supplied through a 100 m long cable from the PoE hub, the camera can be installed in a wide range of positions. Data transmission is also performed via the Ethernet cable, so the connection of several cables is not necessary. This allows you to mount the camera neatly considering the esthetic appearance of the installation position.
The power can also be supplied via an optional AC adaptor (Order No.: BB-HCA2A) when a power outlet is situated near the installation position.

10x Digital Zoom Feature[*3]

The camera has a 10x digital zoom feature that allows you to increase the size of a monitored object up to 10 times. This makes it easier to view objects that are located far away from the camera. In addition, each user can use this digital zoom feature. Therefore, when accessing one camera from multiple positions, each user can view camera images with various magnifications without affecting other users.

Audio 2-way Communication[*4] (Walkie-talkie Type)

2-way audio communication (Walkie-talkie Type) is available for use between the camera and a PC that displays camera images by using an internal microphone or a customer-provided external microphone and speaker with a built-in amplifier. This allows you to send your voice to the camera from your PC as well as to view camera images or listen to the sounds sent from the camera position to the PC.

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*1 Optical zoom type cameras: Panasonic Network Cameras such as BB-HCM381A or BB-HCE481A.

*2 PoE supported: PoE stands for "Power over Ethernet". To use PoE, a PoE hub is necessary.

*3 10x digital zoom feature: As the magnification increases, the image quality decreases. This feature is not available from cell phones.

*4 Audio 2-way Communication: This feature is not available from cell phones. The Talk button and Listen button cannot be used simultaneously. Depending on the network environment and traffic conditions, the audio may be delayed or may break up.

Motion Detection Feature[*5]

The camera has a Motion Detection feature that detects changes in movement within the camera's display range. In addition, the camera can buffer the images before and after the Motion Detection on an SD memory card that can be inserted into the camera, and can transfer images to PCs or cell phones via E-mail or FTP[*6], if specified beforehand.

SD Memory Card Recording

The camera has an SD memory card slot. Inserting an SD memory card[*7] allows you to record camera images (640 x 480 dots, 320 x 240 dots, 160 x 120 dots) without recording them onto a PC via a network.

In addition, enabling the Alarm Detection function using a customer-provided switch allows you to record camera images to the SD memory card directly. This can be triggered by signals such as turning on a light or opening or closing a door. If you enable 1-minute interval timer buffer/transfer with a 2 GB SD memory card, you can record approx. 110,000[*8] images (320 x 240 resolution and standard quality) for about 80 days.

Multi-Camera Page[*9]

The Multi-Camera page displays camera images from up to 4 cameras on a single web browser, and supports audio 2-way communication (Walkie-talkie Type). This camera allows you to switch between 3 sets of 4 cameras. Additionally, static images from a maximum of 12 cameras can be displayed on a single page.

Other Features

- The 320,000-pixel color CCD sensor
- Color Night View mode
- IPv4/IPv6 dual stack supported

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*5 Motion Detection: The detection level varies depending on the resolution, image quality, or object. The feature may not work depending on the detection level.

*6 FTP: This stands for "File Transfer Protocol", and is used for transferring files in networks such as the Internet and intranets.

*7 SD Memory Card: The camera supports 2 GB, 1 GB, 512 MB, 256 MB, 128 MB or 64 MB Panasonic SD memory cards (customer-provided).

*8 About 110,000 images: Only images can be recorded. Sounds cannot be recorded.

*9 Multi-Camera Page: The feature can be used by registering the IP addresses of cameras to a single camera beforehand.

Abbreviations

- UPnP is the abbreviation for Universal Plug and Play.
- "Network Camera" is called "Camera" in this manual.
- "Setup CD-ROM" is called "CD-ROM" in this manual.

Trademarks

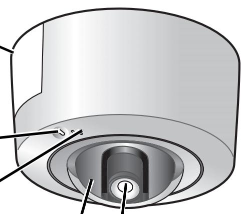
- Adobe, Acrobat and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.
- Microsoft, Windows, Hotmail and ActiveX are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.
- SD Logo is a trademark.
- This software is based in part on the work of the Independent JPEG Group.
- Screen shots reprinted with permission from Microsoft Corporation.
- All other trademarks identified herein are the property of their respective owners.

Table of Contents

1 Camera Monitoring

1.1 Feature Locations

1.1.1 Front View



SD Memory Card Cover
Protects the SD Memory Card from dust. Remove the cover only when removing the SD Memory Card (see page 127).

Indicator
The indicator color shows camera status (see page 140).

Microphone
The microphone picks up audio around the camera (see page 25).

Lens Cover

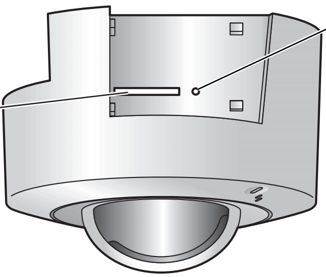
Lens
0.5 m (1 feet 8 inches) —Infinity

Indicator Display

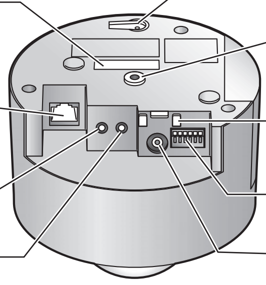
Power on	On LAN	Orange blinking → Green blinking → Green
Normal Operation		Green
Automatic Setup	Setting	Green blinking
	Finished setting	Green blinking → Green
Using DHCP	Getting IP address*1	Green blinking
	Got IP address	Green
Updating Firmware		Orange blinking
FACTORY DEFAULT RESET button pressed		Orange blinking → Turning off (The camera restarts after that.)
UPnP™ Failure		Orange blinking (About a 2-second interval)
Internal Failure		Red blinking*2

*1 The indicator blinks orange if the camera is not connected to the LAN.
*2 See pages 3–6 of Troubleshooting on the CD-ROM for information on indicator error codes.

1.1.2 Side View



1.1.3 Bottom View



1.2 How to Turn on the Camera

The camera supports two power supply methods: via an AC adaptor (Model No. BB-HCA2A: Option) and from a PoE hub through an Ethernet cable. To turn the camera on/off, follow the instructions described below.

When using the AC Adaptor (Model No. BB-HCA2A: Option)

- Connecting the plug of the AC cord to the outlet turns the camera on.
- Disconnecting the plug of the AC cord from the outlet turns the camera off.

When using a PoE hub (Connecting the AC adaptor is not necessary.)

- Connecting the Ethernet cable to the Ethernet port on the PoE hub turns the camera on.
- Disconnecting the Ethernet cable from the Ethernet port on the PoE hub turns the camera off.

Note

- Using both the AC adaptor and PoE hub simultaneously will not cause the camera to malfunction, but using either one of the two methods is recommended.

1.3 Accessing the Camera

1. Start up the web browser on your PC.
2. Enter "**http://IPv4 Address (or URL):Port Number**" on the address bar, and press [Enter] on the keyboard.
   - When the port number is 80 (default), you do not need to include the port number in the address. See page 40 for details about the port number.
   - For IPv6 connection, see page 13 and page 14, and confirm that your equipment meets the requirements.
     Enter "**http://(IPv6-registered URL):Port Number**" on the address bar.
   - If the camera image is not displayed, see "Camera Image/Page Display Troubleshooting" on page 9 of Troubleshooting on the CD-ROM.

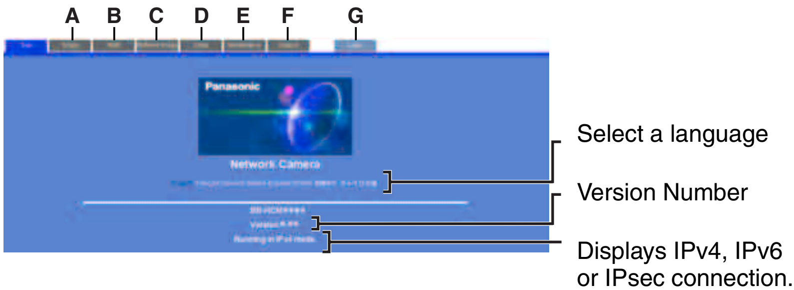
E.g. http://192.168.0.253:50000 **(in IPv4)**
http://✳✳✳✳✳.viewnetcam.com:50000 **(in IPv6)**

3. The Enter Network Password window is displayed. Enter the user name and password that you set previously, and click [OK].

Note

- When [Permit access from guest users] is set on the Security: Administrator page, the authentication window will not be displayed.

4. Click the following tabs to display each page.



A To Single Camera page (page 15)

B To Multi-Camera page (page 27)

C To Buffered Image page (page 29)

D To Setup page (page 35)

E To Maintenance page (page 141)

F To Support page (page 150)

G To log in to the camera (page 79)

<u>Note</u>

- When users other than an administrator are accessing the camera, the [Setup] and [Maintenance] tabs are not displayed. Additionally, when [Do not permit access from guest users] or [Permit access from guest users (mobile only)] is set on the Security: Administrator page, the [Login] tab will not be displayed.
- If [View Multi-Camera page] or [View Buffered Image page] is not permitted on the General User page, the [Multi-Camera] and [Buffered Image] tabs will not be displayed.

5. Close the web browser.

1.3.1 To Access the Camera in IPv6

You need to prepare the following to access the camera in IPv6.

- **PC Requirements**
  Operating System: Windows XP Service Pack 1 or later
  Web Browser: Internet Explorer 6.0 or later
- **An IPv6 Router**
- **An IPv6 Connection Service**
  To connect in IPv6, subscribe to the ISP's "IPv4/IPv6 Dual-Stack" or "IPv6 over IPv4 Tunneling" service. The automatic setup function and the Viewnetcam.com FREE DynamicDNS service setup function using the setup program on the CD-ROM, are not available for use on IPv6-only networks.

IPv6 Domain Name Service

In Windows XP, you cannot access the camera by entering its IP address in the web browser. Enter the IPv6 URL that was registered using the domain name service. We recommend the Viewnetcam.com service (see page 60) as a domain name service. Ask your ISP about other IPv6 domain name services.

What is IPv6?

- IPv6 is short for "Internet Protocol Version 6".
- IPv6 was created to provide the additional IP addresses that will be needed as the Internet continues to expand.
- IPv6 is expected to gradually replace IPv4, with the 2 coexisting for a number of years during a transition period.
- Though most ISPs (Internet Service Providers) do not yet support IPv6, many local networks already use it. When your ISP supports IPv6, your Panasonic Network Camera will be ready!
- For more information, visit **http://www.ipv6.org/**.

Setting up the IPv6 Router, your PC, and the Camera

Setting up the IPv6 Router

Set up the router as you subscribe to the IPv6 service. If access from the WAN side is disabled on the router, enable the TCP packets from the WAN side using packet filtering. See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for information about the recommended routers.

Setting up your PC

1. Click [Start]→[All Programs]→[Accessories]→[Command Prompt].
   - The Command Prompt window is displayed.
2. Enter "ipv6 install".
   - "Succeeded" is displayed.

Note

- If Windows XP Service Pack 1 or later is not installed, "Succeeded" will not be displayed. Install it on your PC.
- When you use Windows XP Service Pack 2, click [Start]→[Control Panel]→[Security Center]→[Windows Firewall]→[Advanced] tab→[Settings] button of ICMP in the Windows Firewall window, then check [Allow incoming router request] check box in the ICMP Settings window.

3. Enter "ipconfig".
   - If the IPv6 address is properly assigned to your PC, IPv6 address will be displayed in the window.

Setting up the Camera

Usually, an IPv6 address is automatically assigned. To assign a static IPv6 address, see page 43. To access the camera in IPv6, you need to subscribe to a domain name service such as Viewnetcam.com, and register the URL.

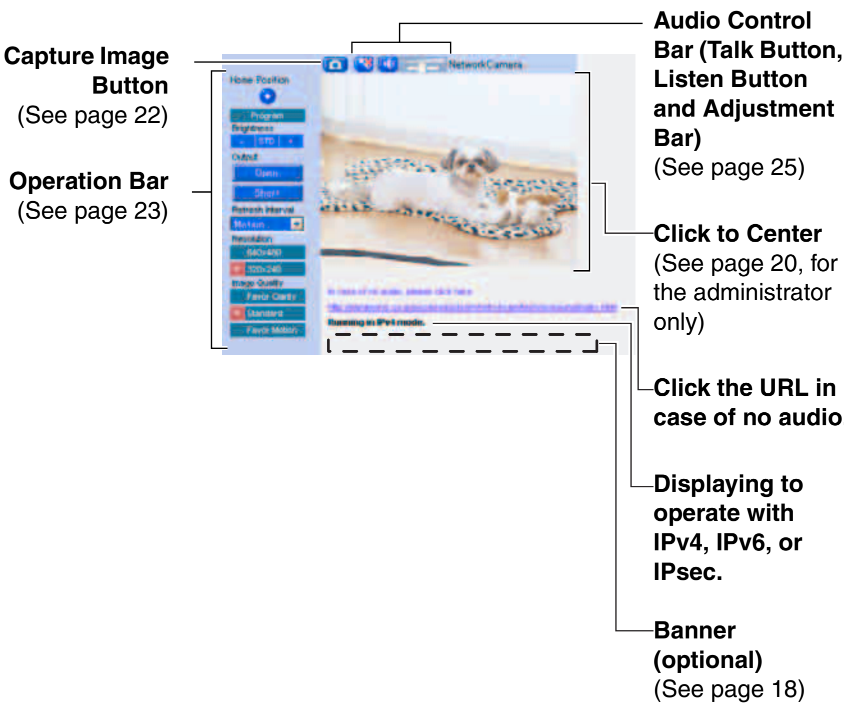
Confirming that You Can Access the Camera

Confirm that the image is properly displayed (see page 11).

1.4 Viewing the Single Camera page

1. Access the camera (see page 11).
- The Top page is displayed.

2. Click the [Single] tab at the top of the page.
- When the Security Warning window is displayed, click [Yes] (see page 17).
- See page 18 for the Security Warning window when using Microsoft® Windows® XP Service Pack 2.



3. Close the web browser.

Note

- When the camera image is not displayed immediately or correctly, click [Refresh] on the web browser's tool bar. The image will be refreshed.
- The refresh interval is set to [Motion] by default. The setting can be changed on the operation bar (see page 23).

- The refresh interval may change depending on the network condition, PC performance and what object you view. SD memory recording, using IPsec or enabling Motion Detection will also increase the refresh interval.
- When displaying video (Motion JPEG), the camera allows up to 30 simultaneous accesses. The 31st user trying to access will see a gray screen. The Buffered Image page is also limited to a maximum of 30 simultaneous accesses.
- To reduce the data traffic, the video can be automatically changed to refreshing still images on the General User page (see page 80).
- To display the Single Camera page directly, add it to the [Favorites] on the web browser.
- To view dark images, enable color night view mode on the Camera Setup page (see page 70). The image will be brighter, but the refresh interval may increase (1 frame a second at maximum) and image quality may decrease in a dark place. (See page 70).
- The following error messages can be displayed.

Error Message	Cause and Remedy
The operation time has ended.	Images cannot be displayed outside the Operation Time (see page 137).
The maximum number of accesses has been exceeded.	The camera allows a maximum of 30 simultaneous accesses when the Refresh Interval is set to [Motion] and when accessing the Buffered Image page. Users who try to access the camera when the maximum number of access has already be reached will see a gray screen. To view camera images, wait, then click the Refresh button on your browser. If viewing the Single Camera page, you can also switch to still images.

Security Warning window

When trying to view a video (Motion JPEG) for the first time, a Security Warning for ActiveX® Controls will be displayed. When using Windows 2000 or Windows XP, log in as an administrator to install ActiveX Controls and enable video viewing.



If you cannot install ActiveX Controls or you cannot see the video using the Internet Explorer

- In Internet Explorer, click [Tools]→[Internet Options]→[Security] tab and click [Custom level].
  (1) Check "Prompt" in "Download signed ActiveX Controls".
  (2) Check "Enable" in "Run ActiveX Controls and plug-ins".
- ActiveX Controls can be installed from the CD-ROM.
  (1) Restart the PC.
  (2) Confirm that Internet Explorer is closed.
  (3) Double-click"ocx\ActiveXInst.exe" on the CD-ROM.
- ActiveX Controls can be downloaded from the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/**.

Note

- When the IP address was changed for the camera, enter it on the address bar.
- Video may not be displayed or audio may not be heard immediately. Wait for a moment.
- If you use a proxy server, set the web browser not to access the proxy server (see page 162).
- In some corporate network environments, a firewall may be used for security purposes. This may prevent motion video from being displayed. In this situation we recommend:
  – Contacting your network administrator.
  – Using regularly refreshed images rather than video.

Security Warning window on Microsoft Windows XP Service Pack 2

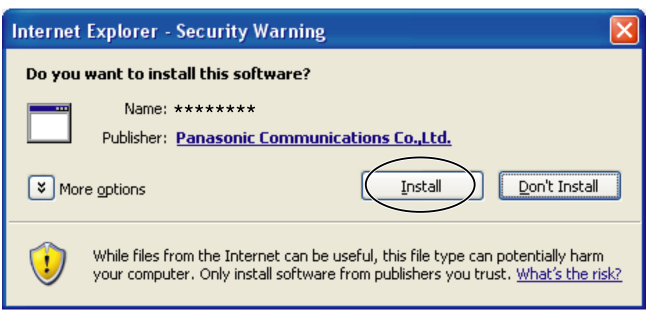
To view a video (Motion JPEG) or to use audio feature, ActiveX Controls must be installed.

Follow the steps shown below to install ActiveX Controls.

1. Click the warning displayed above the tabs, and click [Install ActiveX Control...].



2. Click [Install].



1.4.1 Displaying the Banner

An image and its linked website can be specified for a banner. To display the banner, the Banner Display settings need to be set on the Image Display page (see page 132). Clicking the banner displays the website of the set URL Link. The Banner Display is not enabled as the default.

1.4.2 Zooming In and Out

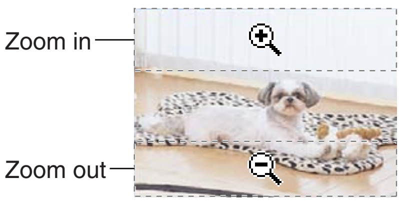
The camera has 10x digital zoom feature that uses ActiveX Controls. The digital zoom feature can be used while playing video (Motion JPEG) on the Single Camera, Multi-Camera and Buffered Image pages. The digital zoom feature can be operated by rotating the mouse wheel or clicking the right mouse button.

Note

- The Click to Center feature is available while zooming in or out. Images can only be moved within the page when magnification is x1.
- As the magnification increases, the image quality decreases.
- The digital zoom feature is not available when viewing on a cell phone.
- When camera images are buffered and transferred, the camera images are not zoomed in and out.

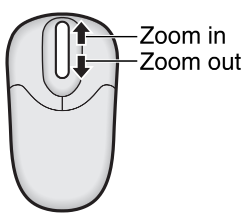
Clicking the right mouse button (For Only Video)

Clicking the right mouse button on the upper third of the Single Camera screen zooms in, and clicking on the lower third zooms out. Zooming in and out is also available by moving the mouse up or down while pressing the right mouse button.



Rotating the mouse wheel (For Only Video)

On a screen, rotating the mouse wheel away from you zooms in, and rotating it towards you zooms out.



Note

- The performance of the mouse varies depending on its setting on your OS.

1.4.3 Auto Centering the Image (Click to Center)

While using the digital zoom, a corresponding point can be moved to the center of the screen by moving the cursor to the desired point and clicking it. This feature is available on the Single Camera, Multi-Camera and Buffered Image (only video) pages.

1. Move the cursor to the desired point.

Cursor


2. Click it.

- The clicked point is centered.
- See page 21 for the tilt operation.

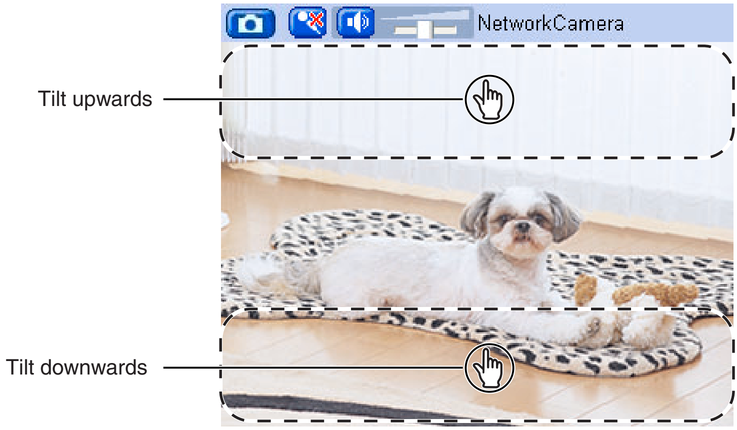


Note

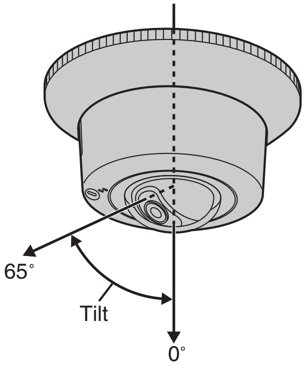
- The Click to Center feature works only within the range that can be displayed at x1 magnification (including the tilt operation range).
- When End Display appears on the operation bar, Click to Center does not work beyond the tilt end (see page 23).
- The camera may not center exactly on the clicked point depending on the lens direction.

1.4.4 Tilt Operation

The administrator can tilt the camera by using the Click to Center feature.



Tilt range



Note

- When the lens moves to its ends, shadows may be displayed partially. This is not a malfunction.
- The tilt operation is not available when using the Network Camera Recorder and Wireless Camera Monitoring System.

1.4.5 Capturing a Still Image

Still images can be saved on your PC.

1. Operate tilt and select a resolution to display an image.

2. Click the capture image button.



- The camera image opens in another window.

3. Right-click the image, and select [Save Picture As...].



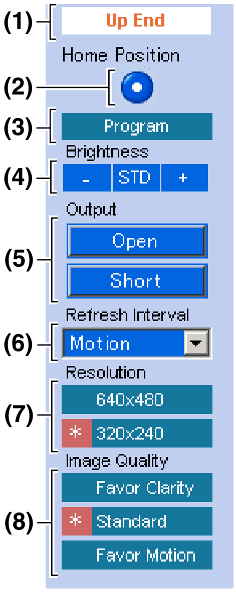
- The Save as dialog box is displayed.

4. Specify a folder, enter the file name and click [Save].

- The camera image is saved at that location.

5. Click [Close].

1.4.6 Using the Operation Bar



(1) End Display: When the tilt has reached the end of its range, the End Display (Up End or Down End) appears.

(2) Home Position (the administrator only): Applies the camera direction to a preset position.

(3) Program (the administrator only): Registers the home position.

(4) Brightness: Adjusts image brightness in 9 steps including [STD] (Standard). Clicking [-] or [+] changes the image brightness.

(5) Output Control: Controls the output signals of the External I/O.

(6) Refresh Interval: Sets a refresh interval.

(7) Resolution: Selects [640 x 480] or [320 x 240] (default) pixels.

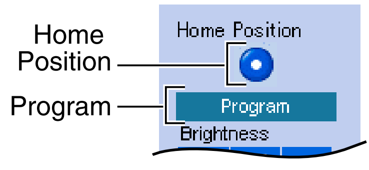
(8) Image Quality: Selects the image quality.

- [Favor Clarity] optimizes the image for good clarity.
- [Standard] keeps the standard quality. (default)
- [Favor Motion] optimizes the image for motion display.

1.4.7 Setting the Home Position (the administrator only)

Registering the Home Position

The home position is the position that the camera moves to when the power is turned on. The administrator can register one position for the home position.



1. Click [Program].
   - [Program] switches to [Cancel]. Click [Cancel] to quit without saving changes.
2. Tilt the camera to a desired position.
3. Press the Home Position button.
4. Click [Save] to register, or click [Back] and [Cancel] to cancel.
   - If "Success!" is displayed, the position has been registered successfully. Click [Back].

Viewing the Home Position

1. Press the Home Position button.
   - The camera moves to that position and the image is displayed.

Note

- Registering and operating the home position is not available when using the Network Camera Recorder and Wireless Camera Monitoring System.

1.5 Listening to Camera Audio and Talking through the Camera

1. Access the camera (see page 11).
   - The Top page is displayed.
2. Click the [Single] tab at the top of the page.
3. The Audio Control Bar (Talk Button, Listen Button and Adjustment Bar) is displayed at the top of the screen. Listening mode and talking mode are selected using the relevant icons. This feature is only displayed for general users when it is enabled.

Audio Feature

Listen Button

Talk Button



: You can talk from the camera using the PC's microphone. Clicking the button stops sending audio.



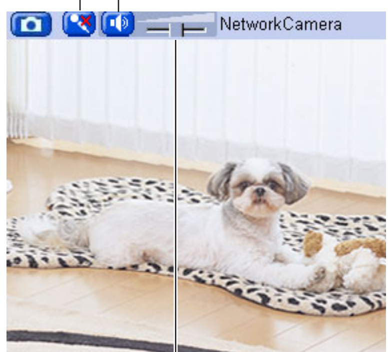
: The audio is stopped. Clicking the button again starts the Talk feature.



: You can listen to the audio from the camera. Clicking the button stops the audio.



: The audio is stopped.



Adjustment Bar
(Volume adjustment only for listening)



This slider adjusts the volume. Moving the slider to the right increases the volume, and moving it to the left decreases the volume.

Note

- The Talk button and Listen button cannot be used simultaneously. The Talk feature is stopped during listening. The Talk feature can be used by only one user at a time. The Listen feature can be used by a maximum of 10 users simultaneously. If the audio breaks up, reduce the maximum bandwidth (see page 41 or page 46). In this case, the number of users who can listen simultaneously is also reduced.
- Audio features such as camera microphone sensitivity can be set up on the Audio page (see page 73).
- If you are running other applications or have multiple windows open, the audio may be interrupted or delayed.
- When the image is refreshed during any operation such as home position registration or a web browser refresh, the volume is reset to the default (midrange) position. Audio that was muted is enabled.
- The audio may be interrupted due to your PC's performance or network environment. Reduce the maximum bandwidth (see page 41 or page 46).
- If the camera is accessed while the PC user visits other websites, the active microphone may pick up audio from the PC's speakers. Pay attention to it.
- Talk feature cannot be used from a PC when the camera is accessed via a proxy server.
- If you cannot hear the audio or talk from your PC, see "Audio Problems Troubleshooting" on page 16 of Troubleshooting on the CD-ROM.
- When using a microphone cable, it should be no longer than 7 m (23 feet). The excessive cable length or a poor quality cable can cause a degradation in audio quality.
- Use a speaker with a built-in amplifier. The speaker connects to the camera with a stereo audio cable similar to that used by your PC. The output signal is mono.

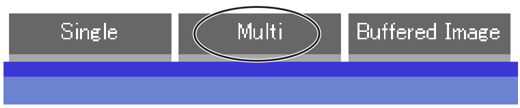
1.6 Viewing the Multi-Camera page

To view multiple cameras on the Multi-Camera page, you need to configure each camera on the Multi-Camera Setup page (see page 135).

1. Access the camera (see page 11).

- The Top page is displayed.

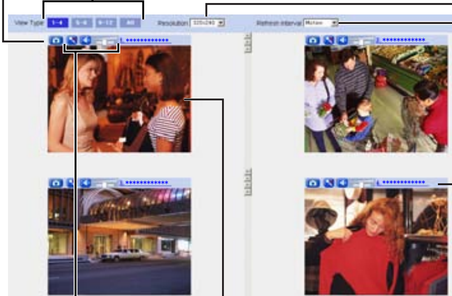
2. Click the [Multi] tab at the top of the page.



- The Multi-Camera page can display up to 12 camera images.

Capture Image Button (See page 22)

Switches displayed cameras. If you select [All] at the View Type, video (Motion JPEG) or audio buttons cannot be displayed.



Selects [320 x 240] (default) or [160 x 120] pixels resolution.

Selects the refresh interval (Motion—60–second interval).

When clicking the camera name, the Single Camera page is displayed on another window.

The selfcamera is registered at No. 1.

Audio Control Bar (Talk button, Listen button and Adjustment Bar) (See page 25)

3. Close the web browser.

Note

- When selecting [All] for the View Type, all images are displayed in 160 x 120 pixels resolution, and the Audio Control Bar is not displayed.
- 640 x 480-pixel images cannot be displayed on the Multi-Camera page.
- When viewing video (Motion JPEG), we recommend using an Ethernet switching hub instead of a repeater hub to prevent degradation in video display.
- Due to network congestion or the number of accesses, the refresh interval may increase.
- If the refresh interval is too long, restrict the bandwidth on the Network page (see page 41 and page 46). The refresh interval should improve.
- To reduce the data traffic, the video can be automatically changed to refreshing still images on the General User page (see page 80).
- When viewing 4 cameras on the Multi-Camera page, you may need 3 to 4 Mbps bandwidth. If sufficient bandwidth is not available, the refresh interval may increase.

When an image is not displayed on the Multi-Camera page

- Confirm that the global IP address is specified correctly for each camera and that each camera is connected to the Internet. For Internet access, local IP addresses (e.g. 192.168.0.253) cannot be used. (see page 11 of Troubleshooting on the CD-ROM).
- Confirm the settings on the Multi-Camera Setup page (see page 135).
- Confirm that the web browser is not accessing a proxy server (see page 162).

When setting [Do not permit access from guest users] or [Permit access from guest users (mobile only)] on the Security: Administrator page

- An authentication window is displayed when accessing the camera. Enter the administrator's or the general user's user name and password.
- When you view images from several cameras on the Multi-Camera page, an authentication window is displayed for each camera that has security settings enabled. Enter the administrator's or general user's user name and password registered for each camera.

Using the digital zoom feature on the Multi-Camera page

- The 10x digital zoom is available. You can zoom in and out using the mouse or scroll wheel (see page 19).
- The zoom depth (x1.0—x10.0) is displayed while zooming.
- As the magnification increases, the image quality decreases.

1.7 Viewing the Buffered Image page

To buffer images in the camera's internal memory, you need to set up the image transfer settings (see page 84, page 94, or page 106). Buffered images can be viewed on this Buffered Image page.

Note

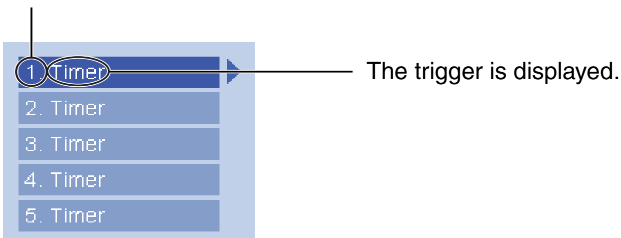
- Sound cannot be buffered on the Buffered Image page.

1. Access the camera (see page 11).
   - The Top page is displayed.
2. Click the [Buffered Image] tab at the top of the page.

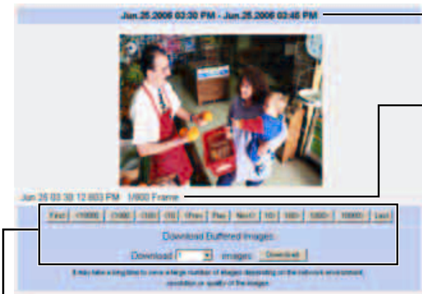


3. Click the trigger number.

The trigger number is displayed (see page 84, page 94, or page 106).



4. Display images by clicking buttons below.



The date and time when the images were buffered are displayed.

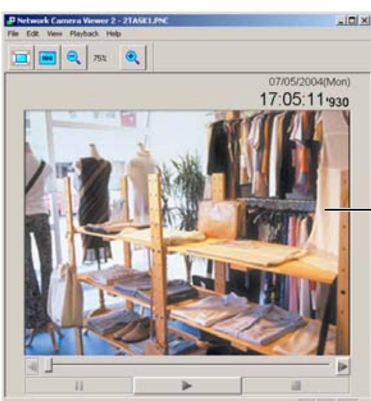
The date, time and frame number are displayed.

[Play]:
The buffered images are displayed in sequence.

[<Prev] or [Next>]:
The previous or next image is displayed.

[First], [<10000], [<1000], [<100], [<10] or [10>], [100>], [1000>], [10000>], [Last]:
The first or last image, or the 10th, 100th, 1000th or 10000th image before or after the current image appears.

[Download]
Clicking [Download] after specifying the number of images saves images to the specified location. The saved files can be viewed in an easier operation on your PC. Download the viewer software from the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** and install it on your PC.



Viewer software window

Using the digital zoom feature on the Buffered Image page

- The 10x digital zoom is available. You can zoom in and out using the mouse or scroll wheel (see page 19).
- The zoom depth (x1.0—x10.0) is displayed while zooming.
- As the magnification increases, the image quality decreases.

Note

- It may take a long time to save a large number of images depending on the network environment, resolution or quality of the images.
- The buffered images are displayed chronologically.
- Date, time and frame number are not displayed in play mode.
- Still images (not being played) from the Buffered Image page can be saved. Put the cursor on the image, and right-click it. Then select [Save Picture As...].
- The maximum number of buffered images changes depending on resolution, image quality and the specific images the camera is buffering. At 320 x 240 pixels resolution and standard quality, the camera can buffer about 125 frames. (If 3 triggers are enabled [maximum 5 triggers], the internal memory or the SD memory card capacity is divided into 3 sections. In this case, each trigger can buffer about 40 frames.) See page 177 for more details regarding the internal memory capacity. See page 178 for the SD memory card capacity.

1.7.1 Deleting Buffered Images

If you intend to delete images for each transfer method, click [Delete Buffered Images] on the Trigger page (see page 84, page 94, or page 106).

Note

- If you click [Save] on the Trigger page, all buffered images on the SD memory card are deleted.
- If you are buffering images to the internal memory, the following operations also delete all buffered images.
  - Turning off or restarting the camera.
  - Updating the camera.
  - Resetting the camera to default.
  - Saving the Date and Time page.
  - Changing the Enable/Disable settings on the Image Buffer/Transfer page (see page 84, page 94, or page 106).

1.8 Viewing Still Images on Your Cell Phone

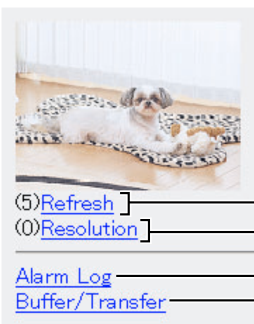
Still images can be viewed over the Internet from a compatible cell phone.

Enter **"http://IP address (or URL):Port Number/Mobile"** on a cell phone and press [OK].

- When the port number is set to 80 (default), it is not required.

E.g. http://＊＊＊.＊＊＊.＊＊＊.＊＊＊:50000/Mobile
(or ＊＊＊＊＊.viewnetcam.com:50000/Mobile)

- Access to the camera from cell phones must be allowed.
- When an authentication window is displayed, enter the administrator's or general user's user name and password.
- A still image is displayed. (Video [Motion JPEG] cannot be displayed.)

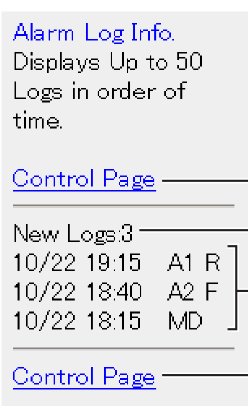


(1) Pressing 5 will refresh the image.

(2) 160 x 120 resolution is displayed on the first access. Pressing 0 switches the resolution to 320 x 240.

(3) Displays up to 50 Logs in order of time, when logging in as an administrator (see below).

(4) Allows you to use your cell phone to enable/disable the image buffer/transfer feature (see page 34).



(5) Goes to the control page.

(6) Displays the number of new logs.

(7) Displays the date and time, the kind of signal and sensor.

Display	Operation	Signal
A1 R	Alarm1	Rising: GND to Open (High)
A2 F	Alarm2	Falling: Open (High) to GND
MD	Motion Detection	-

(8) Goes to the control page.

Note

- Audio feature does not work on cell phones.
- If the features are not permitted on the General User page (see page 80), the buttons related with the features are not displayed.
- If the image is not displayed properly, try the following 2 URLs.

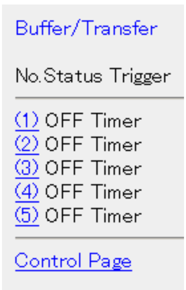
  1. **http:// IP address(or URL):Port Number/MobileH** for HTML.
     (or ＊＊＊＊＊.viewnetcam.com:50000/MobileH)
  2. **http:// IP address(or URL):Port Number/MobileX** for XHTML.
     (or ＊＊＊＊＊.viewnetcam.com:50000/MobileX)

- Some cell phones are not compatible with Panasonic Network Cameras. Some phones may allow viewing only on port 80, and some may not support password authentication. See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for a list of cell phones, and their level of compatibility with the Panasonic Network Camera.
- Some cell phones display images at a decreased size.
- If [Permit access from guest users] or [Permit access from guest users (mobile only)] is selected, users can access cell phone-specific screens via a cell phone or PC without the need for authentication (see page 75).
- Only administrators can operate the Alarm Log and Buffer/Transfer.

1.8.1 Enabling or Disabling the Buffer/Transfer on your Cell Phone

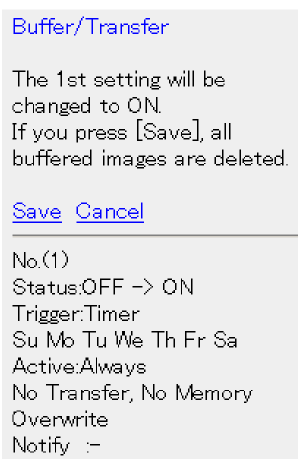
1. Access camera images from your cell phone, and log in as an administrator.
2. Select [Buffer/Transfer].
3. Select a trigger number that you want to enable or disable.

Example: Enabling the Buffer/Transfer setting (No.1).



- Selecting [Control Page] changes to the previous page.

4. Select [Save].



- Selecting [Save] enables or disables the buffer/transfer settings, and all buffered images will be deleted.
- Selecting [Cancel] takes you back to the previous page without saving changes.

2 Using the Camera's Basic Features

2.1 Setup Page of the Camera

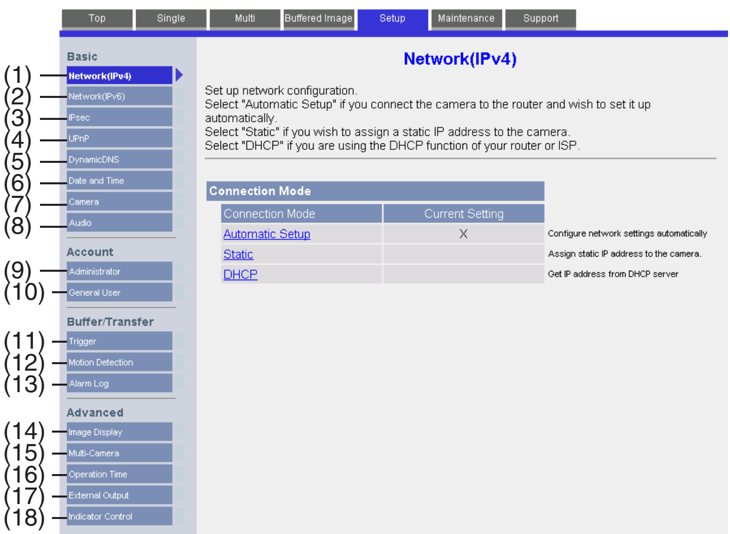
1. Access the camera (see page 11).

- The Top page is displayed.

Note

- When [Permit access from guest users] is set on the Security: Administrator page, click the [Login] tab and log in as an administrator.
- When users other than an administrator are accessing the camera, the [Setup] and [Maintenance] tabs are not displayed.
- If [View Multi-Camera page] or [View Buffered Image page] is not permitted on the General User page, the [Multi-Camera] or [Buffered Image] tab will not be displayed.

2. Click the [Setup] tab at the top of the page.



Basic		
(1)	**Network (IPv4)**	Configures the IPv4 network settings to connect the camera to the network (see page 38).
(2)	**Network (IPv6)**	Configures the IPv6 network settings to connect the camera to the network (see page 43).
(3)	**IPsec**	Enables IPsec (Transport or Tunnel mode) (see page 47).
(4)	**UPnP**	Enables automatic port forwarding and creates a shortcut to the camera (see page 57).
(5)	**DynamicDNS**	Registers with a DNS service, such as Viewnetcam.com service (see page 60).
(6)	**Date and Time**	Sets the date and time, automatic time adjustment and daylight saving time settings (see page 67).
(7)	**Camera**	Sets camera name, white balance and color night view (see page 70).
(8)	**Audio**	Sets output, volume, PC audio input timeout, input, camera microphone sensitivity and mute during tilt settings (see page 73).
Account		
(9)	**Administrator** *1	Sets authentication and administrator security (user name and password) (see page 75).
(10)	**General User** *1	Sets general user security (user name and password) and access levels (see page 80).
Buffer/Transfer		
(11)	**Trigger**	Sets image buffer or transfer by timer, alarm, or motion detection (see page 84, page 94, or page 106).
(12)	**Motion Detection**	Sets the threshold and sensitivity for motion detection (see page 120).
(13)	**Alarm Log**	Sets the information required to send log notifications by e-mail (see page 124).
Advanced		
(14)	**Image Display**	Sets the resolution, image quality and refresh interval of the Single Camera and Multi-Camera page, as well as time stamp setting, language and banner (see page 132).
(15)	**Multi-Camera** *1	Sets the camera IP address or host name, and camera name on the Multi-Camera page (maximum 12 cameras) (see page 135).

(16)	**Operation Time**	Sets the time period to display camera images (see page 137).
(17)	**External Output**	Sets the external output terminal of the External I/O (see page 139).
(18)	**Indicator Control**	Sets the indicator display (see page 140).

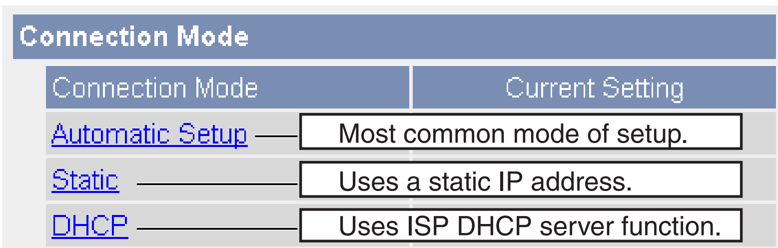
*1 If you change the [Administrator], [General User], or [Multi-Camera Setup page] settings, changes will not be applied to video (Motion JPEG) viewers. Restart the camera to apply changes to all video viewers.

2.2 Connecting the Camera to Your IPv4 Network

The Network page offers three options to configure the camera in IPv4.

- [Automatic Setup] automatically assigns an unused IP address to the camera, and uses UPnP™ (Universal Plug and Play) to configure your router.
- [Static] allows the user to use a specific IP address.
- [DHCP] is offered for ISPs that require this option.

1. Click [Network (IPv4)] on the Setup page.
2. Click a connection mode.

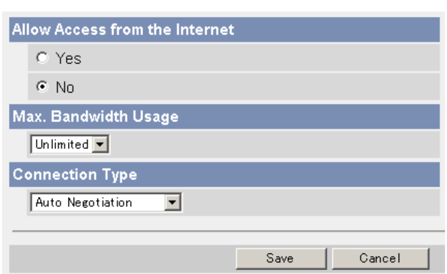


- See below for details of each connection mode.

3. Enter each parameter in the relevant data field.

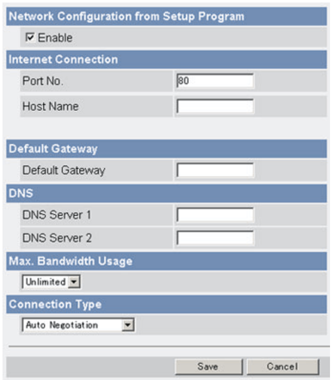
Automatic Setup

The camera automatically obtains the network settings (subnet mask, default gateway and DNS server address) using the router's or ISP's DHCP feature. The camera also automatically searches for an unused IP address on your network. If you select [Yes] for Allow Access from the Internet, the camera automatically enables port forwarding using UPnP™. In this case, the camera automatically searches for an unused port number on your network in order of 80 and from 50000 to 50050.

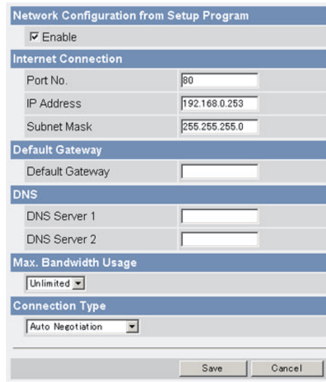


- Clicking [Cancel] takes you back to the previous page without saving changes.

DHCP Setup



Static Setup

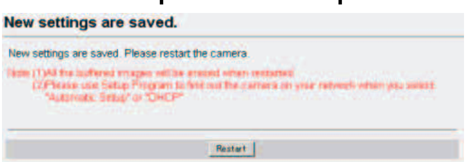


- Clicking [Cancel] takes you back to the previous page without saving changes.

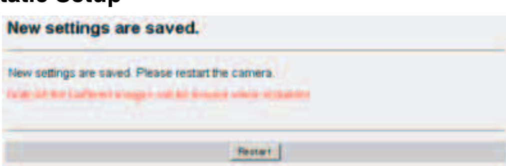
4. Click [Save] when finished.

- The new settings are saved.
- When finished, the following page is displayed.

Automatic Setup or DHCP Setup



Static Setup



Note

- The current network settings are shown on the Status page in the Maintenance section (see page 142).

5. Click [Restart].

- The camera restarts, and the Top page is displayed.
- Checking [Yes] for [Allow Access from the Internet] on [Automatic Setup] may not display the Top page, because the port number may change. Use the Setup Program to access the camera.

Note

- If you do not know the camera IP address when setting [Automatic Setup] or [DHCP Setup], it can be searched for by the Setup Program (see page 156).
- When the camera is restarted, all buffered images in the internal memory are deleted. The buffered images on the SD memory card are not deleted.

Setting	Description
Allow Access from the Internet (Automatic Setup Only)	• The allow Access from the Internet setting automatically configures the router's Port Forwarding setting (some routers call it "Address Translation", "Static IP Masquerade", "Virtual Server" or "Port Mapping"). To enable Internet access to the camera, check [Yes]. In this case, the camera automatically searches for unused port number on your network in order of 80 and from 50000 to 50050. To disable Internet access to the camera, check [No].
Network Configuration from Setup Program (Static/DHCP Only)	• To prohibit the Setup Program from changing the network settings, uncheck the box.
Port Number (Static/DHCP Only)	• The default port number is 80. When you use multiple cameras with a router on your network, each camera must be assigned its own port number (see page 58 "2.7.2 Connecting the Camera to a Router that Does Not Support UPnP™ (IPv4 Only)"). – Do not set the following port numbers. FTP: 20 and 21, Telnet: 23, SMTP: 25, DNS: 53, POP3: 110, HTTPS: 443, ICQ: 4000 and IRC: 6661—6667. • Enter a number between 1—65535. • Some ISPs do not allow you to use port 80. Ask your ISP or network administrator about which port numbers are accessible over the Internet.
• IP address • Subnet Mask (Static Only)	• If your ISP or network administrator specifies an IP address and subnet mask, enter them in each data field. • If you use the camera on a LAN, set an IP address with the same class as your PC (see page 155). • Set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available.

Setting	Description
Host Name (DHCP Only)	• If your ISP uses the DHCP function, which automatically assigns an IP address to the camera, enter the ISP–assigned host name. (The host name may be used as an authentication.) • Enter ASCII characters for the host name (see page 176). Note that [Space], ["], ['], [&], [<] and [>] are not available.
Default Gateway[*1] (Static/DHCP Only)	• If you have been assigned a Default Gateway address by your ISP or network administrator, enter it in this data field. • Set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available.
DNS Server Address[*1] (Static/DHCP Only)	• The DNS server address is required in the following situations: – Transferring camera images by E–mail or FTP – Setting cameras by their host names on the Multi-Camera Setup page – Using the DynamicDNS service – Using the alarm log notification • If you have been assigned a DNS server addresses by your ISP or network administrator, enter them in this data field. There are usually two addresses. • Set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available.
Max. Bandwidth Usage	• The bandwidth can be restricted. • Select a maximum bandwidth from [Unlimited] to [0.1 Mbps]. • This setting is valid in both IPv4 and IPv6. **Note** • Set a maximum bandwidth referring to the following file sizes. These are examples for a JPEG file of standard image quality. File sizes may change depending on the image quality or the brightness of the object. – 160 x 120 pixels: About 3.5 KB (28 Kbit) – 320 x 240 pixels: About 10 KB (80 Kbit) – 640 x 480 pixels: About 18 KB (144 Kbit)

Setting	Description
Connection Type	• Select [Auto Negotiation] normally. If the camera cannot be accessed, see page 9 of Troubleshooting on the CD-ROM. • This setting is valid in both IPv4 and IPv6.

*1 If the IP address is automatically obtained from a DHCP server, this field does not need to be set.

2.3 Connecting the Camera to Your IPv6 Network

The Network page offers two options to configure the camera in IPv6.

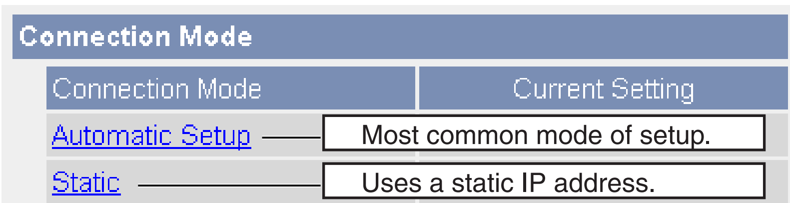
- [Automatic Setup] automatically assigns an IPv6 address to the camera.
- [Static] allows the user to use a specific IPv6 address.

Note

- IPv6 is an expanded protocol created for future Internet expansion. Your network and your ISP must support IPv6 before you can use this feature.

1. Click [Network (IPv6)] on the Setup page.

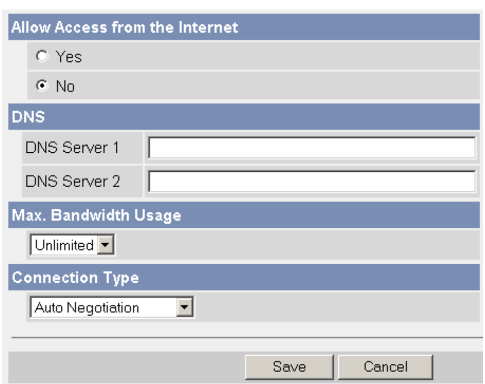
2. Click a connection mode.



3. Enter each parameter in the relevant data field.

Automatic Setup

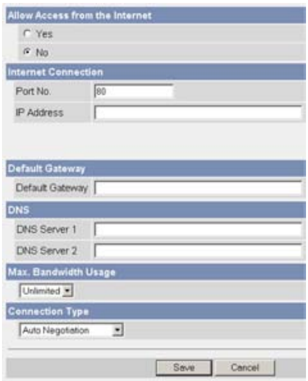
The camera is automatically assigned an IPv6 prefix from the IPv6 router, and produces the original IPv6 address from the IPv6 prefix. If you select [No] for Allow Access from the Internet, the camera can be accessed only from the LAN that has an same IPv6 prefix as the camera.



- Clicking [Cancel] takes you back to the previous page without saving changes.

Static Setup

You can assign a static IPv6 address to the camera. If you select [No] for Allow Access from the Internet, the camera can be accessed only from the LAN that has an same IPv6 prefix as the camera.



- Clicking [Cancel] takes you back to the previous page without saving changes.

4. Click [Save] when finished.

- The new settings are saved.
- When finished, the following page is displayed.



Note

- The current network settings are shown on the Status page in the Maintenance section (see page 142).

5. Click [Restart].

- The camera restarts, and the Top page is displayed.

Note

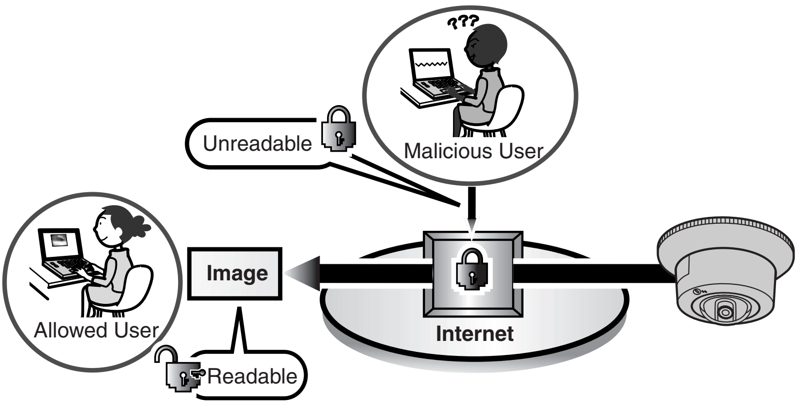
- When you do not know the camera IP address while setting [Automatic Setup], you can search for it using the Setup Program (see page 156). Or you can search for it on the Status page (see page 142) after accessing the camera in IPv4.
- If the camera is restarted, all buffered images on the internal memory are deleted. The buffered images on the SD memory card are not deleted.

Setting	Description
Allow Access from the Internet	• If [Yes] is selected for Allow Access from the Internet, you can access the camera from the Internet. If [No] is selected, the camera can be accessed only from a LAN that has an same IPv6 prefix as the camera.
Port Number (Static Only)	• The default port number is 80. A unique port number must be set for each terminal on your network. • Do not set the following port numbers. FTP: 20 and 21, Telnet: 23, SMTP: 25, DNS: 53, POP3: 110, HTTPS: 443, ICQ: 4000 and IRC: 6661—6667. • Enter a number between 1—65535. • Some ISPs do not allow you to use port 80. Ask your ISP or network administrator about which port numbers are accessible over the Internet.
IP address (Static Only)	• Enter a global address. You do not need to enter a prefix length. • An IPv6 address consists of 8 hexadecimal numbers divided by ":". Consecutive 0s can be abbreviated as "::". (E.g. 2001:2:3:4::5)
Default Gateway (Static Only)	• If you have been assigned a Default Gateway IPv6 address by your ISP or network administrator, enter it in this data field. • An IPv6 address consists of 8 hexadecimal numbers divided by ":". Consecutive 0s can be abbreviated as "::". (E.g. 2001:2:3:4::5)
DNS Server Address	• The DNS server address is required in the following situations: – Transferring camera images by E–mail or FTP – Setting cameras by their host names on the Multi-Camera Setup page – Using the DynamicDNS service – Using the alarm log notification • If you have been assigned a DNS server IPv6 addresses by your ISP or network administrator, enter them in this data field. There are usually two addresses. • An IPv6 address consists of 8 hexadecimal numbers divided by ":". Consecutive 0s can be abbreviated as "::". (E.g. 2001:2:3:4::5)

Setting	Description
Max. Bandwidth Usage	• The bandwidth can be restricted. • Select a maximum bandwidth from [Unlimited] to [0.1 Mbps]. • This setting is valid in both IPv4 and IPv6. **<u>Note</u>** • Set a maximum bandwidth referring to the following file sizes. These are examples for a JPEG file of standard image quality. File sizes may change depending on the image quality or the brightness of the object. – 160 x 120 pixels: About 3.5 KB (28 Kbit) – 320 x 240 pixels: About 10 KB (80 Kbit) – 640 x 480 pixels: About 18 KB (144 Kbit)
Connection Type	• Select [Auto Negotiation] normally. If you cannot access the camera, see page 9 of Troubleshooting on the CD-ROM. • This setting is valid in both IPv4 and IPv6.

2.4 What is IPsec?

IPsec provides security for the transmission of sensitive information over unprotected networks such as the Internet. IPsec authenticates IP packets between participating IPsec devices.



Camera's IPsec Features

The camera can use IPsec in both IPv4 and IPv6. The camera supports the following IPsec features.

Item	Supported Feature
IKEv1	Pre-shared Key Method Phase 1 mode : Main mode*1 Phase 2 mode : Quick mode Cipher Algorithm : DES-CBC, 3DES-CBC, AES-CBC (128, 192, 256 bits) Message-Digest Algorithm : HMAC-MD5, HMAC-SHA-1
IPsec	ESP (Encapsulating Security Payload)*2 Transport mode, Tunnel mode Cipher Algorithm : DES-CBC, 3DES-CBC, AES-CBC (128, 192, 256 bits) Message-Digest Algorithm : HMAC-MD5-96, HMAC-SHA-1-96

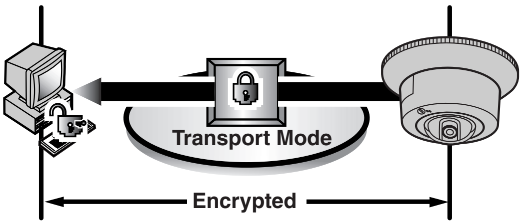
*1 The camera does not support aggressive mode.
*2 The camera does not support authentication header (AH).

IPsec Mode Selection

Select transport mode or tunnel mode to access the camera.

Transport Mode (IPv4 Only)

The image is encrypted for the whole way between the camera and your PC. The transport mode is available only in IPv4 for users of Windows XP Service Pack 1 or later.



Prepare the following required items:

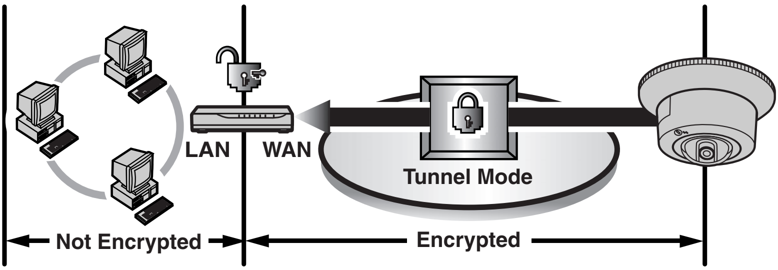
<table>
<tr><th>Item</th><th colspan="2">Supported Feature</th></tr>
<tr><td rowspan="4">PC</td><td>Operating System</td><td>: Windows XP Service Pack 1 or later</td></tr>
<tr><td>Web Browser</td><td>: Internet Explorer 6.0 or later</td></tr>
<tr><td>ISP Service</td><td>: A service for multiple global addresses (A global address must be set up on your PC.)</td></tr>
<tr><td colspan="2"><u>Note</u>
• To use IPsec, you need to set up your operating system. See the Panasonic Network Camera support website at http://panasonic.co.jp/pcc/products/en/netwkcam/ for setup details.</td></tr>
<tr><td>Camera</td><td>ISP Service</td><td>: A service for multiple global addresses (A global address must be set up to the camera.)</td></tr>
</table>

Tunnel Mode (IPv4/IPv6)

An IPsec mode of operation where the entire IP packet including IP header is authenticated and encrypted. A new IP header is added (protecting the entire original packet). Both VPN clients and VPN gateways can use this mode.

Note

- The camera can be accessed only from PCs under the VPN router. Other PCs cannot access the camera.



Prepare the following required items:

Item	Supported Feature	
PC	Operating System	: Windows XP, Windows 2000, Windows Me, Windows 98SE (in IPv4)
		: Windows XP Service Pack 1 or later (in IPv6)
	Web Browser	: Internet Explorer 6.0 or later
Router	ISP Service (in IPv4)	: A service for static global addresses (A global address must be set up to the WAN side of the router.)
	ISP Service (in IPv6)	: An "IPv4/IPv6 Dual-Stack" or "IPv6 over IPv4 Tunneling" service
	Note • See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for the recommended router.	
Camera	ISP Service (in IPv4)	: A service for multiple global addresses (A global address must be set up to the camera.)
	ISP Service (in IPv6)	: An "IPv4/IPv6 Dual-Stack" or "IPv6 over IPv4 Tunneling" service

2.5 Encrypting the Camera Image in Transport Mode

The camera can encrypt images using IPsec transport mode.

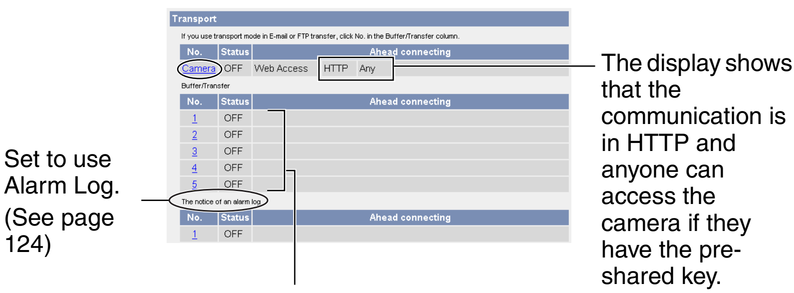
Note

- If you use IPsec, the refresh interval increases.

1. Click [IPsec] on the Setup page.

2. Click **Camera** in the Transport column.

- If you use transport mode for E-mail or FTP transfer, click **No.** in the Buffer/ Transfer column.

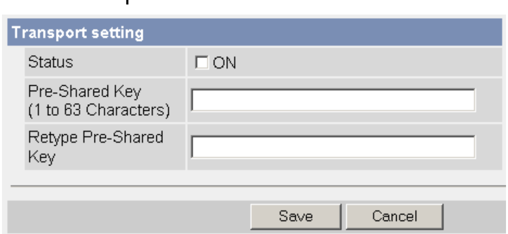


Set up these settings to transfer images in transport mode (see page 118).

Note

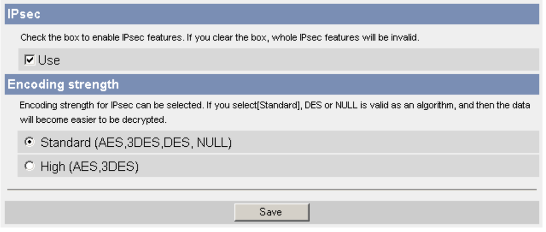
- To display an Alarm Log, set Alarm 1, Alarm 2 or Motion Detection for the Trigger Setting and check [Enable].

3. Enter each parameter in the relevant data field.



Setting	Description
Status	• Check the box to use this encryption method.
Pre-Shared Key	• This is the key used in the authentication of communications. Enter the same pre-shared key as your PC. • Enter ASCII characters for the host name (see page 176). But [Space], ["], ['], [&], [<] and [>] are not available. **Note** • If the pre-shared key becomes known to a third party, it may lead to illegal access, a leak of private information or interference. To protect your security and privacy, pay attention to the following points. – Make it known only to people you trust. – Set it as long and complex as possible. – Change it regularly.

4. Click [Save] when finished.
   - The new settings are saved.
5. Click [Cancel].
   - The IPsec page is displayed.
6. Check [Use] in the IPsec column, select an encoding strength, and click [Save].



Setting	Description
IPsec	• Check the box to enable IPsec features. If you uncheck the box, all IPsec features will be invalid.
Encoding strength	• The encoding strength for IPsec can be selected. If you select [Standard], DES or NULL is valid as an algorithm, and the data will become easier to decrypt.

7. Click [Restart].

8. Set up your PC according to the requirements on page 48.

- Set the FTP server or E-mail server to transfer images.

9. Access the camera (see page 11).

- If you can access the camera, the IPsec setup is complete.

Note

- In IPsec communications, "IPsec" is displayed on the Top page or the Single Camera page.
- If you cannot communicate using IPsec, see page 23 of Troubleshooting on the CD-ROM.
- See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for IPsec features.

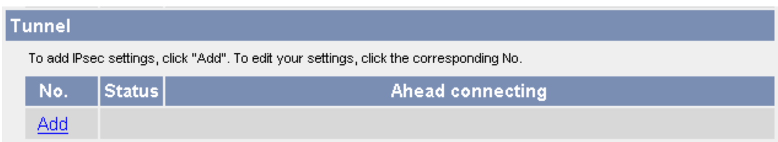
2.6 Encrypting the Camera Image in Tunnel Mode

The camera can encrypt images using IPsec tunnel mode.

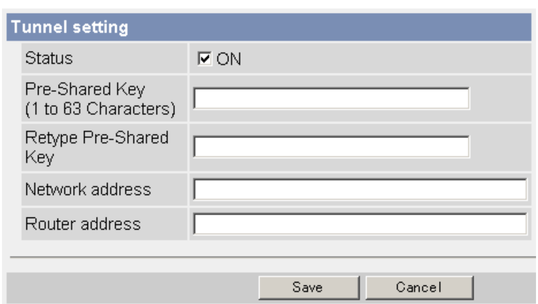
Note

- Do not set IPsec on PCs under the VPN router. Communications may be blocked.
- If you use IPsec, the refresh interval increases.
- The camera can be accessed only from PCs under the VPN router. Other PCs cannot access the camera.

1. Click [IPsec] on the Setup page.
2. Click **Add** in the Tunnel column.



3. Enter each parameter in the relevant data field.



Setting	Description
Status	• Check the box to use this encryption method.

Setting	Description
Pre-Shared Key	• This is the key used in the authentication of communications. Enter the same pre-shared key as your VPN router. • Enter ASCII characters for the host name (see page 176). But [Space], ["], ['], [&], [<] and [>] are not available. **Note** • If the pre-shared key becomes known to a third party, it may lead to illegal access, a leak of private information or interference. To protect your security and privacy, pay attention to the following points. – Make it known only to people you trust. – Set it as long and complex as possible. – Change it regularly.
Network address	• Enter the destination network address. • Enter "IP address/Prefix length" in the data field.
Router address	• Enter the WAN IP address of the destination network VPN router. **Note** • An IPv6 link-local address is not available. • The camera can be accessed only from PCs under the VPN router. Other PCs cannot access the camera.

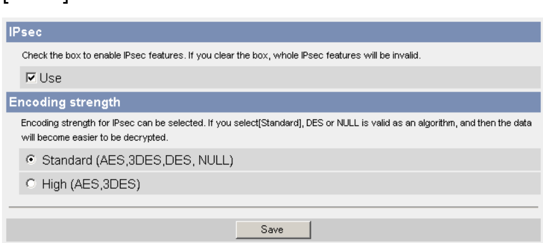
4. Click [Save] when finished.

- The new settings are saved.

5. Click [Cancel].

- The IPsec page is displayed.

6. Check [Use] in the IPsec column, uncheck the encoding strength, and click [Save].



Setting	Description
IPsec	• Check the box to enable IPsec features. If you uncheck the box, all IPsec features will be invalid.
Encoding strength	• The encoding strength for IPsec can be selected. If you select [Standard], DES or NULL is valid as an algorithm, and the data will become easier to decrypt.

7. Click [Restart].

8. Set up your VPN router as shown below.

- To use tunnel mode, you need to set up your VPN router.

IKE Items		Settings
Phase 1	Authentication Method	Pre-shared Key Method
	ID	Specifies by address.
	Mode	Main mode*1
	Diffie-Hellman MODP Group	Specifies 1 or 2.
	Cipher Algorithm	Select from DES-CBC, 3DES-CBC or AES-CBC (128, 192, 256 bits). (Multiple selections are available.)
	Message-Digest Algorithm	HMAC-MD5, HMAC-SHA-1
	Lifetime	Specifies by 28800 s (Byte setting is not supported.)
Phase 2	Mode	Quick mode
	PFS	Specifies either of Off, D-H Group 1 or D-H Group 2.
	Cipher Algorithm	Select from DES-CBC, 3DES-CBC, AES-CBC (128, 192, 256 bits) or NULL. (Multiple selections are available.)
	Message-Digest Algorithm	HMAC-MD5-96, HMAC-SHA-1-96
	Lifetime	Specifies by 28800 s (Byte setting is not supported.)

*1 The camera does not support aggressive mode.

- Set up the IPsec policy as below.

Items	Settings
Protocol	ANY
Source Network	Network address and subnet mask on the LAN side of the VPN router
Source IP address	A global address on the WAN side of the VPN router
Destination Network	A global address of the camera
Destination IP address	A global address of the camera

9. Access the camera (see page 11).

- If you can access the camera, the IPsec setup is complete.

Note

- In IPsec communications, "IPsec" is displayed on the Top page or the Single Camera page.
- If you cannot communicate using IPsec, see page 23 of Troubleshooting on the CD-ROM.
- See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for IPsec features.

2.7 Using UPnP™ (Universal Plug and Play)

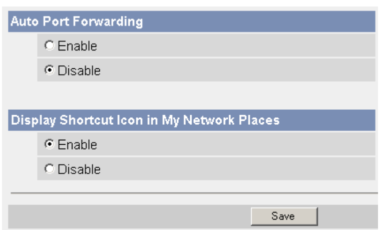
UPnP™ can automatically configure your router to make it accessible from the Internet. In order to use this feature, your router needs to support UPnP™, and it must be enabled. UPnP™ is disabled on most routers by default. Most router manufacturers disable this feature as the default setting.
See **http://panasonic.co.jp/pcc/products/en/netwkcam/** and your router's manual for details of how to enable UPnP™. After UPnP™ is enabled on the router, set [Enable] for auto port forwarding.

Note

- The camera's UPnP™ does not support IPv6. Use this feature in IPv4.

1. Click [UPnP] on the Setup page.

2. Set up UPnP™.



Setting	Description
Auto Port Forwarding	• If the network setting is [Status] or [DHCP], enabling auto port forwarding allows you to access the camera from the Internet. **Note** • If the network setting is [Automatic Setup], also enable [Allow Access from the Internet] on the Network page (see page 40).
Display Shortcut Icon in My Network Places	• Enabling this creates a shortcut to the camera in the My Network Places folder. **Note** • To enable this feature when using Windows XP or Windows Me, enable the UPnP™ Windows component beforehand (see page 165).

3. Click [Save] when finished.

- The new settings are saved.
- When finished, "Success!" is displayed.

4. Click [Go to UPnP page].
   - The UPnP page is displayed.

2.7.1 Connecting the Camera to a Router that Supports UPnP™ (IPv4 Only)

To allow access from the Internet with a router supporting UPnP™, follow the procedures shown in Getting Started.

Note

- On some routers, the UPnP™ feature is disabled by default. Enable your router's UPnP™ feature following the router manual before you set up the camera. See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for details.
- If a maximum idle time is set in PPPoE or PPTP connection with your ISP, disable it on the router. See the router manual for details.

2.7.2 Connecting the Camera to a Router that Does Not Support UPnP™ (IPv4 Only)

To allow access from the Internet with a router that does not support UPnP™, follow the procedures below.

1. Select [Static] on the Network (IPv4) page.

   (1) Access the camera (see page 11).
   (2) Click the [Setup] tab at the top of the page.
   (3) Select [Static] on the Network page.
   - The Static IP Address Configuration page is displayed. Make a note of the IP address and port number, since they are required to enable port forwarding on the router.

   Note

   - You must assign a unique IP address and a unique port number to each camera on the LAN.

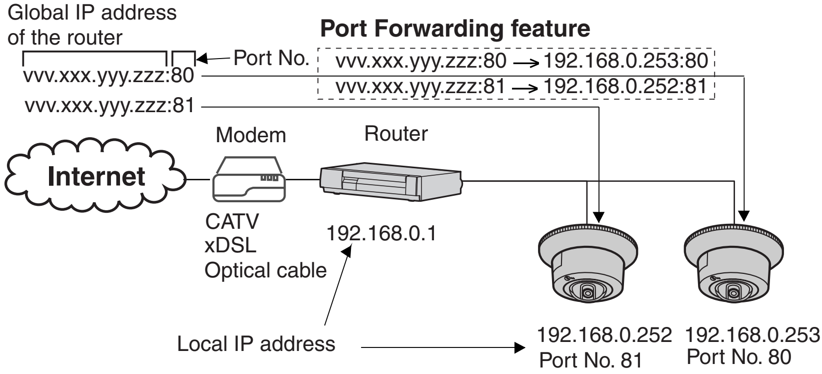
   (4) Click [Save] without changing the settings.
   (5) Click [Restart].

2. Enable port forwarding*1 on the router.

   Using the IP address and port number noted on step 1-(3), enable port forwarding on the router. See the router manual for how to enable port forwarding.
3. Register with the Viewnetcam.com service.

Port Forwarding feature[*1] (IPv4 Only)

The port forwarding feature is required to allow camera access from the Internet with a router that does not support UPnP™. It exchanges a local IP address for a global one.



Note

- The IP addresses shown above may differ from those offered on your home network.

*1 "Port forwarding" may be called "Address translation", "Static IP Masquerade", "Virtual server" or "Port mapping" in other products.

2.8 Registering with the DynamicDNS Service

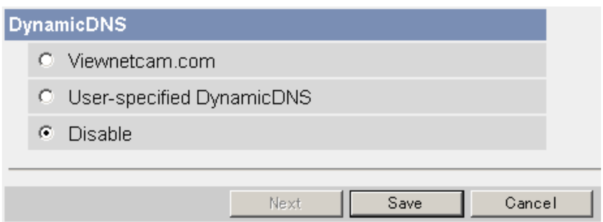
DynamicDNS is a service that allows you to assign an easy-to-remember name to the camera, for example, similar to your favorite web site. It also allows you to easily access the camera, even when your ISP changes the IP address. Panasonic Communications recommends that you register with a DynamicDNS to access the camera from the Internet. See **http://www.viewnetcam.com** for details about the Viewnetcam.com service.

1. Click [DynamicDNS] on the Setup page.

- When you select [Viewnetcam.com] (see below)
- When you select [User-specified DynamicDNS] (see page 62)

When you select [Disable]

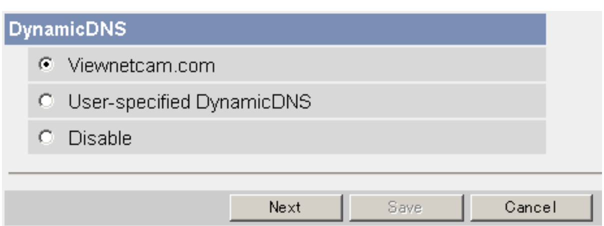
2. Check [Disable] and click [Save].



- When finished, "Success!" is displayed.
- Clicking [Cancel] cancels your settings without saving changes.

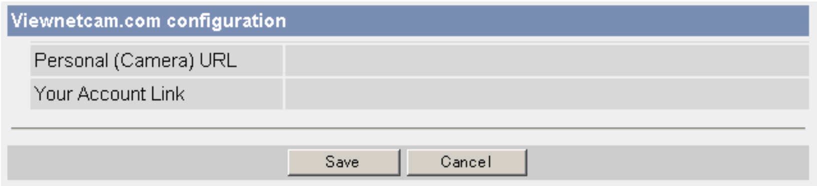
When you select [Viewnetcam.com]

2. Check [Viewnetcam.com] and click [Next].



- Clicking [Cancel] cancels your settings without saving changes.

3. Click [Save].



- Clicking [Cancel] cancels your settings without saving changes, and the DynamicDNS window is displayed.

Setting	Description
Personal (Camera) URL	• The camera's personal URL will be displayed after you register with the Viewnetcam.com service.
Your Account Link	• The URL required to register with the Viewnetcam.com service is displayed. Clicking [Your Account Link] item name displays the Viewnetcam.com registration website.

4. Click [OK].

- When finished, "Success!" is displayed.
- The new settings are saved.

5. Click [Go to Viewnetcam.com page].

- The Viewnetcam.com page is displayed.

6. Click **Your Account Link**.

- The Viewnetcam.com registration website is displayed.

Note

- When the Viewnetcam.com registration website is not displayed, confirm that the URL is displayed in the right column next to Your Account Link. If the URL is not displayed, follow the procedures below.

(1) Wait for a moment, then click [Refresh] on the web browser.
(2) Confirm that your network (your PC and camera) is connected to the Internet.

- Personal (Camera) URL is available after registering with the Viewnetcam.com service.
- If port forwarding is not enabled or your network is not connected to the Internet, the Viewnetcam.com service is not available.

7. Register with the Viewnetcam.com service following the instructions on the website.

- The Viewnetcam.com page is displayed.

8. Access your camera with the registered URL from the Internet (see page 11).

- When the Top page is displayed, Viewnetcam.com registration is complete.

Note

- It may take a maximum of 30 minutes for the registered URL to work.
- If "Expired" is displayed for the Personal (Camera) URL on the Viewnetcam.com page or for the Camera URL at Viewnetcam.com on the Status page, restart the camera. After that, confirm that your registered URL is displayed on the pages.

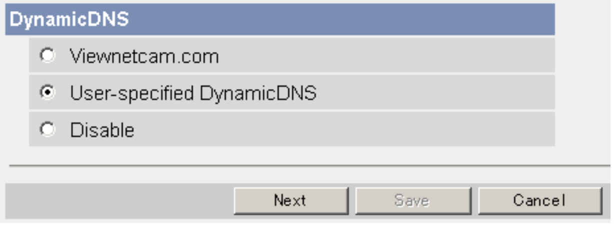
Confirming Internet access

Due to the router specifications, the image may not be displayed even if you access the camera from your PC on the same LAN as the camera. In this case, try:

- Accessing from a PC on another network (see page 11)
- Accessing from your cell phone (see page 32)

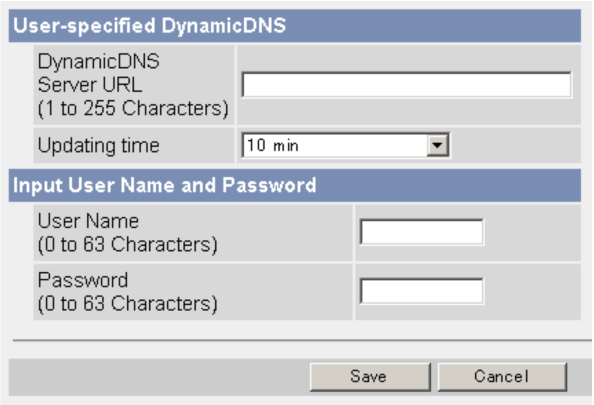
When you select [User-specified DynamicDNS]

2. Check [User-specified DynamicDNS] and click [Next].



- Clicking [Cancel] cancels your settings without saving changes.

3. Set each parameter.



- Clicking [Cancel] cancels your settings without saving changes.
- DynamicDNS information can be obtained from companies in the DynamicDNS service industry.

Setting	Description
DynamicDNS Server URL*1	Input URL acquired from the DynamicDNS service industry company. Enter up to 255 characters. The URL must be started with "http://".
Updating time	Specify the updating time.
User Name*2	Input User Name acquired from the DynamicDNS service industry company. Enter up to 63 characters.
Password*2	Input Password acquired from the DynamicDNS service industry company. Enter up to 63 characters.

*1 Note that [Space] and ["] are not available.
*2 Note that ["] and [:] are not available.

4. Click [Save] after finished.

- The new settings are saved.
- When finished, "Success!" is displayed.

5. Click [Go to DynamicDNS page].

- The DynamicDNS page is displayed.

Note

- It may take several minutes for the registered URL to connect.
- Some DynamicDNS services may not connect.

Confirming Internet access

Due to the router's specifications, the image may not be displayed even if you access the camera from your PC on the same LAN as the camera. In this case, try:

- Accessing from a PC on another network (see page 11)
- Accessing from your cell phone (see page 32)

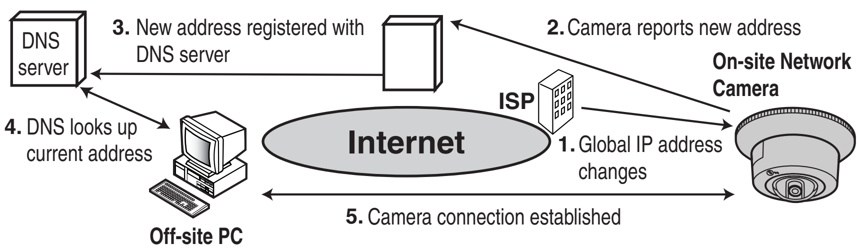
2.8.1 DynamicDNS Service (IPv4/IPv6)

DynamicDNS allows you to choose an easy-to-remember address (such as "bob.viewnetcam.com") that can be used to view images from your camera over the Internet. This service is compatible with both IPv4 and IPv6 addresses. Some DynamicDNS service is not compatible with IPv6 address.

What are the advantages of DynamicDNS service?

In order to view camera images over the Internet, you need to know your camera's global IP address. However, many Internet Service Providers (ISPs) assign their customers a "dynamic" IP address that changes monthly, weekly, or each time they log on. Unless you have been assigned a static IP address (an IP address that does not change periodically) by your ISP, you may find it difficult to access your camera over the Internet. The Viewnetcam.com service allows you to access your camera even if your assigned global IP address changes.

How the DynamicDNS service works



1. Your ISP assigns a global IP address to your Internet access account that changes periodically. This is the address needed to access the camera over the Internet.
2. When your ISP-assigned global IP address changes, your camera automatically notifies the DynamicDNS service server of the new address in the DynamicDNS. The camera notifies the DynamicDNS service server of the new address in DynamicDNS in the following cases.
   - When starting the camera
   - When an update interval time has been set
   - When clicking the [Save] button
3. The DynamicDNS server contacts the Domain Name System (DNS) server and registers your new global IP address to your chosen DynamicDNS address (such as "bob.viewnetcam.com").

4. When you enter your DynamicDNS address in your web browser while away from home or the office, the DNS server looks up the global IP address assigned to your DynamicDNS address.
5. The DNS server finds your current global IP address and allows you to connect to your camera.

Note

- Ask your ISP about what type of IP address you are using.
- Some ISPs assign you a local IP address. In this case, the DynamicDNS service cannot be used.
- If the camera is using a port number other than 80, the port number must be specified at the end of the DynamicDNS URL. For example:
  Using port 80: **http://(Cameraname).viewnetcam.com**
  Using any other port: **http://(Cameraname).viewnetcam.com:Port Number**

2.9 Setting the Date and Time

The Date and Time page allows you to set and confirm the date and time. The date and time are used for the settings of the trigger setting, alarm log, operation time and Buffered Image page.

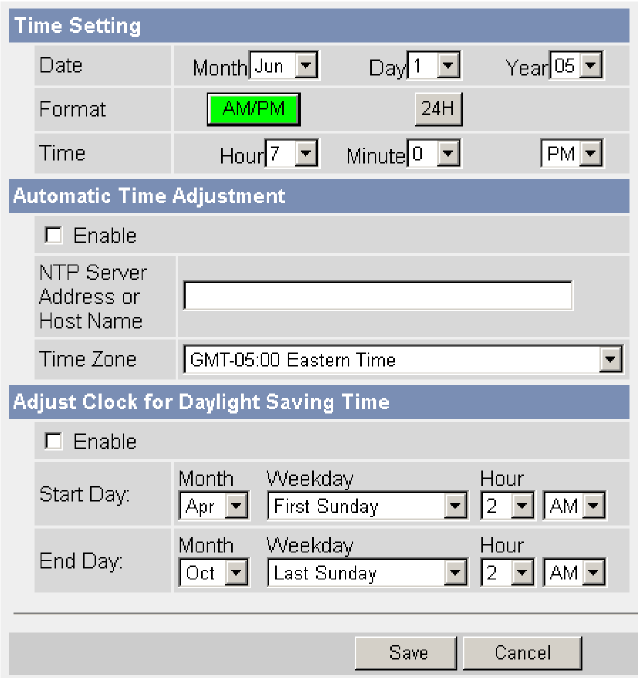
Note

- Saving a new date and time deletes all buffered images on the internal memory. The buffered images on the SD memory card are not deleted.

1. Click [Date and Time] on the Setup page.

2. Set each parameter.

- Set [Automatic Time Adjustment] to synchronize the time automatically with an NTP server.



- Clicking [Cancel] cancels your settings without saving changes.

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>Time Setting</td><td>• Set the date and format (AM/PM or 24 H). The interface and available values depend on the format. The date and time are used for the settings of the trigger setting, sensor log, operation time and Buffered Image page. Note that the format for the subject and file name of E-mails by E-mail or FTP transfer can only be 24 h.</td></tr>
<tr><td>Automatic Time Adjustment</td><td>• NTP (Network Time Protocol) server synchronizes the camera's internal clock automatically every day. Check the box to enable it.
• Set the NTP server IP address. In IPv4, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. In IPv6, set 8 hexadecimal numbers divided by ":". Consecutive 0s can be abbreviated as "::". (E.g. 2001:2:3:4::5) Or set a host name (1—255 characters).
• Select your time zone.
<u>Note</u>
• The camera will not synchronize to the NTP server if there is more than an 1 hour difference between the NTP server time and the camera's current time. This is to protect the camera's time setting from fraudulent NTP server tampering, incorrect time information, etc.</td></tr>
<tr><td>Adjust Clock for Daylight Saving Time</td><td>• During daylight saving time, the internal clock is turned forward an hour. The clock will shift one hour forward at the set time on the Start Day, and move back one hour at the set time on the End Day. Check the box to enable it.
<u>Note</u>
• An "s" is inserted between the date and time of the time stamp when this feature is enabled. The time stamp is printed on images transferred by the Image Transfer feature.</td></tr>
</table>

3. Click [Save] when finished.
- The new settings are saved.
- When finished, "Success!" is displayed.

4. Click [Go to Date and Time page].
- The Date and Time page is displayed.

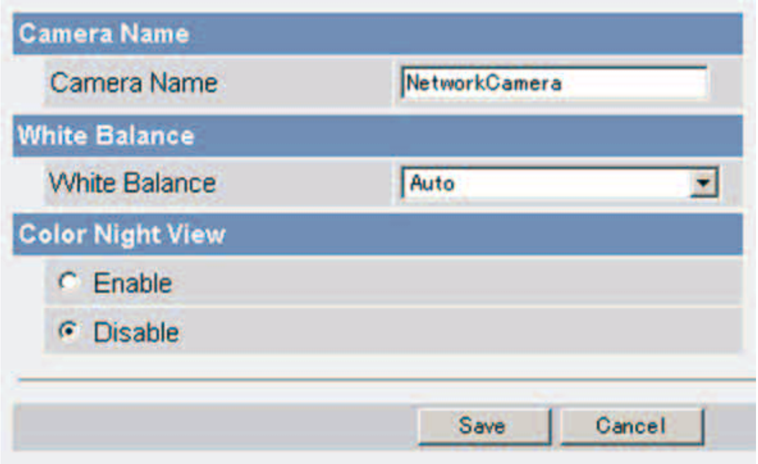
Note

- Date and time settings become incorrect depending on the length of time the camera is turned on and its internal temperature. Using the Automatic Time Adjustment is recommended.

2.10 Changing Camera Settings

The Camera page allows you to set the camera name, white balance and color night view settings.

1. Click [Camera] on the Setup page.
2. Set each parameter.



- Clicking [Cancel] cancels your settings without saving changes.

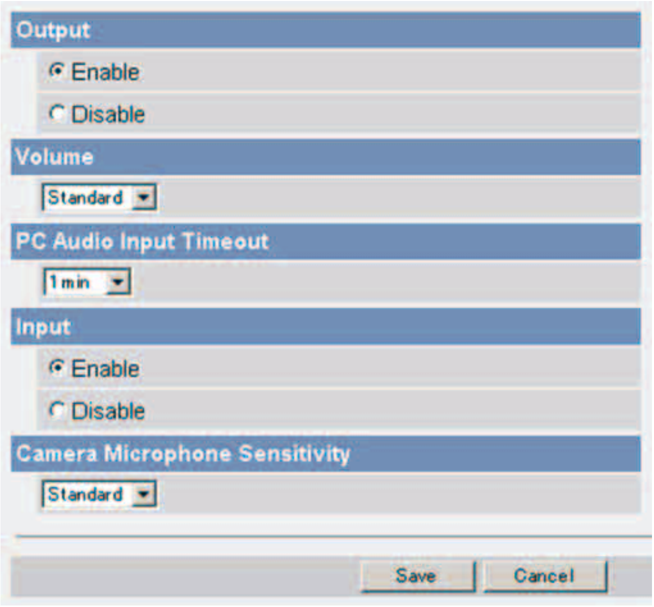
Setting	Description
Camera Name	• The camera name is displayed on the Single Camera page. • Enter ASCII characters (see page 176) or characters from other languages (1—15 characters for a 1-byte character and 1—7 characters for a 2-byte character). Note that [Space], ["], ['], [&], [<], and [>] are not available.
White Balance	Select from the following options. "K (Kelvin)" is a unit for color temperature. • Auto (default) — Automatic adjustment • Fixed Indoor — Electric bulb (2800 K) • Fixed Fluorescent (White) — White type fluorescent light (3600 K) • Fixed Fluorescent (Daylight) — Daylight type fluorescent light (4000 K) • Fixed Outdoor — Solar light (6000 K) • Hold — Setting [Hold] keeps the current white balance. **Note** • White balance settings are also saved when registering the home position.
Color Night View	• In the color night view mode, the camera image becomes brighter in a low illuminance. The camera image returns to normal operation in a bright location. • In color night view mode, the following may be experienced: – Image refresh interval may increase (1 frame a second at maximum). – Images may blur when viewing moving objects or tilting in low illuminance. **Note** • In the color night view mode, the image may have white or colored dots around the object. This is not a problem, since it is a CCD sensor characteristic.

3. Click [Save] when finished.
    - The new settings are saved.
    - When finished, "Success!" is displayed.
4. Click [Go to Camera page].
    - The Camera page is displayed.

2.11 Adjusting Audio

The Audio page allows you to set the microphone, the external speaker, microphone sensitivity and external speaker volume settings.

1. Click [Audio] on the Setup page.
2. Set each parameter.



- Clicking [Cancel] cancels your settings without saving changes.

Setting	Description
Output	• You can control audio output for the external speaker connected to the camera.
Volume	• You can control the external speaker output volume.
PC Audio Input Timeout	• You can set the time to consecutively perceive the audio from your PC. (1 [default]—60 minutes)
Input	• You can control audio input from the external microphone connected to the camera.
Camera Microphone Sensitivity	• You can select the microphone sensitivity level. Minimum: Decreased sensitivity Standard: Standard setting (default) Maximum: Enhanced sensitivity

3. Click [Save] when finished.
- The new settings are saved.
- When finished, "Success!" is displayed.

4. Click [Go to Audio page].
- The Audio page is displayed.

3 Registering Users

3.1 Changing the Authentication Setting and Administrator User Name and Password

The Security: Administrator page allows you to change authentication, and the administrator's user name and password. An authentication window allows registered users to access the camera.

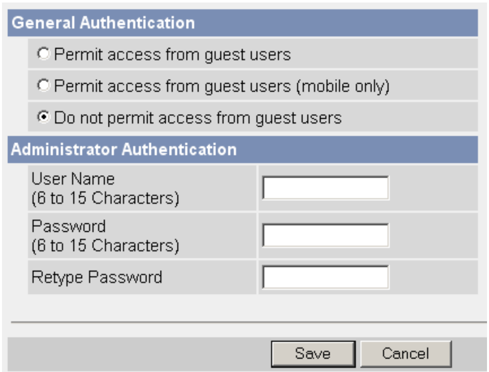
Note

- If you access the camera for the first time, the window for setting the administrator's user name and password is displayed. Make a note of the user name and password so that you will not forget them.
- The user name and password should be secured at your own responsibility. Pay attention to the following points.
  - Set a user name and password with as many characters as possible.
  - Change the password regularly.
- Setting [Permit access from guest users] (permitting access without a User Name or Password) or [Permit access from guest users (mobile only)] (permitting access without a User Name or Password) at General Authentication risks the images being viewed by third parties. Control the contents of the images accordingly.

IMPORTANT

- It is important to limit access to the camera by use of a unique User Name and a secret Password. Because the camera is accessed through the Internet it is possible that the camera could be accessed by unknown individuals, including those who are commonly known as "hackers," to whom you do not want to allow access. The use of a unique User Name and a Password known only to you will help insure that only authorized individuals are given access to the camera. You have the option of proceeding without a User Name and Password, but it is strongly recommended that you utilize these protections.

1. Click [Administrator] on the Setup page.
2. Set each parameter.



- Clicking [Cancel] cancels your settings without saving changes.

Setting	Description
General Authentication	Authentication has 3 phases. • If you set [Permit access from guest users], the camera does not display the authentication window in camera access. All guest users can view images without a user name and password. • If you set [Permit access from guest users (mobile only)], an authentication window is not displayed when accessing the cell phone page. All guest users can view images without a user name and password when accessing the cell phone page. **<u>Note</u>** • If you set [Permit access from guest users], [Login] is displayed at the top of the page. After you log in as an administrator (see page 79), the Setup page and the Maintenance page can be accessed.  • If you set [Do not permit access from guest users], an authentication window is displayed to access the camera. Users must enter the user name and password.

Setting	Description
User Name/ Password	• User Name (6 to 15 characters): Enter the user name. • Password (6 to 15 characters): Enter the password. **Note** • The password must be different from the user name. • Retype Password: Reenter the password. • Enter ASCII characters (see page 176). Note that [Space], ["], ['], [&], [<], [>] and [:] are not available.

Note

- When setting authentication, set the user name and password, and save them.
- When users other than an administrator are accessing the camera, the [Setup] and [Maintenance] tabs will not be displayed.
- The user name and password are case sensitive.

3. Click [Save] when finished.

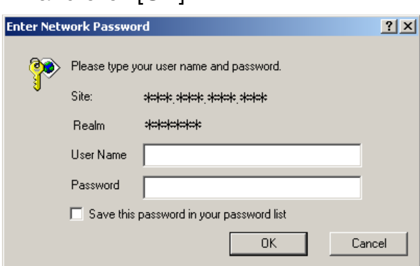
- The new settings are saved.
- When finished, "Success!" is displayed.

4. Click [Go to Security: Administrator page].

- The Security: Administrator page is displayed.

Note

- When the user name and password have been changed, the camera displays an authentication window. Enter the user name and password, and click [OK].



Administrator/General Users/Guest Users

The access level to the camera is divided to administrator, general users and guest users.

Items	Administrator	General Users	Guest Users	Guest Users (mobile only)
User Name and Password	Required	Required	Not Required	Not Required
Number of Users	1	50	—	—
Accessible Pages	All Pages	Pages Except For Setup and Maintenance page	Pages Except For Setup and Maintenance page	Cell phone page only
Access Level	All Operations	Access level can be set for each general user (see page 80).	Access level can be set for guest users (see page 80).	—

Note

- Guest users mean unregistered users. Set [Permit access from guest users] or [Permit access from guest users (mobile only)] on the Security: Administrator page (see page 75) to allow access from guest users.

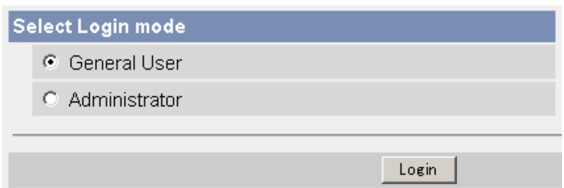
3.2 Logging in to the Camera

If you set [Permit access from guest users] on the Security: Administrator page, [Login] is displayed at the top of the page. After you log in as an administrator, the Setup page and the Maintenance page can be accessed.

1. Click [Login] at the top of the page.

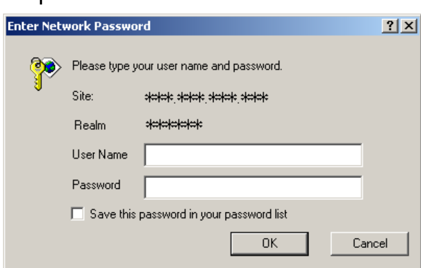


2. Check a login mode, and click [Login].



Note

- The authentication window is displayed. Enter the user name and password set for General Users or Administrator.



3. Enter a valid user name and password according to the Login mode selected in step 2, and click [OK] to log in to the camera.

3.3 Creating, Modifying or Deleting General Users

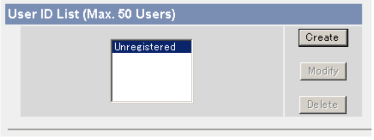
The General User page allows you to create, modify or delete general users. Up to 50 general users can be registered. The access level is set for each general user. If you set [Permit access from guest users] or [Permit access from guest users (mobile only)] on the Security: Administrator page, the access level can be set for guest users.

Note

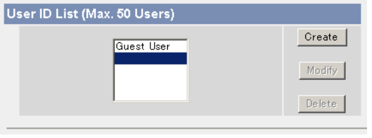
- For general users, the Setup and Maintenance tabs are not displayed.

1. Click [General Users] on the Setup page.
2. To create a general user, click [Create].

- When setting [Do not permit access from guest users]



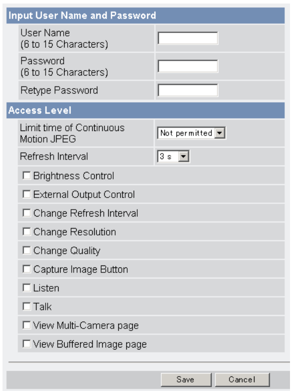
- When setting [Permit access from guest users] or [Permit access from guest users (mobile only)]



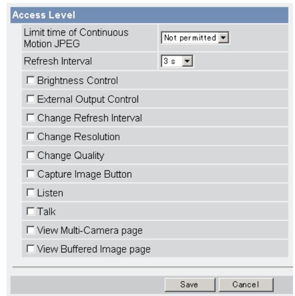
- To change the settings of general users or guest users, select their name and click [Modify]. The modification page is displayed.
- To delete a general user, select the name and click [Delete]. The confirmation page is displayed.

3. Set each parameter.

- Settings for general users



- Settings for guest users



- Clicking [Cancel] takes you back to the previous page without saving changes.

Setting	Description
User ID List	• Up to 50 general users can be registered. • The list is used to modify or delete general user settings.
User Name/ Password	• User Name (6 to 15 characters): Enter the user name. • Password (6 to 15 characters): Enter the password. **Note** • The password must be different from the user name. • Retype Password: Reenter the password. • Enter ASCII characters (see page 176). Note that [Space], ["], ['], [&], [<], [>] and [:] are not available.

Setting	Description
Access Level	An access level is set for each general user. Check each feature to enable access to it. • In the limit time of continuous Motion JPEG setting, set the time for changing video (Motion JPEG) to still images for each user. (Not permitted, Unlimited, 10 seconds—60 minutes) In the refresh interval setting, set the refresh interval after the video has changed to still images. (3—60 seconds) • See the corresponding page for details of the following features. Brightness Control (see page 23) External Output Control (see page 23) Change Refresh Interval (see page 23) Change Resolution (see page 23) Change Quality (see page 23) Capture Image Button (see page 22) Listen (see page 25) Talk (see page 25) View Multi-Camera page (see page 27) View Buffered Image page (see page 29)

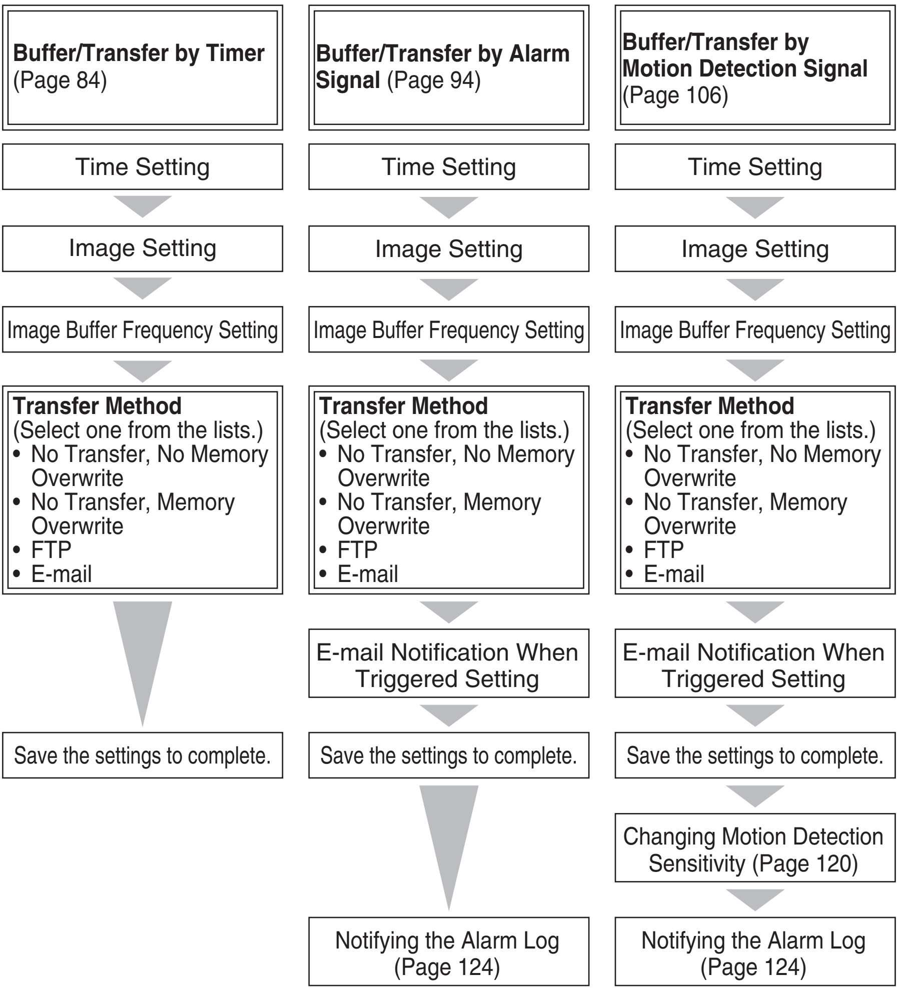
4. Click [Save] when finished.
- The new settings are saved.
- When finished, "Success!" is displayed.

5. Click [Go to General User page].
- The General User page is displayed.

4 Buffering or Transferring Images

4.1 Procedures of Buffering or Transferring Images

The procedures from this page to page 117 describe settings of the image buffer or transfer. See the procedures below to understand the general outline of the settings.



4.2 Buffering or Transferring Images by Timer

The Trigger page allows you to enable image buffer/transfer by E-mail or FTP.

Note

- If you are recording images to the SD memory card, refresh interval slows down.

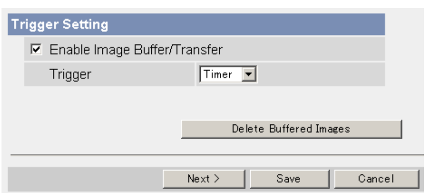
1. Click [Trigger] on the Setup page.

2. Click a **No.** to enable buffer/transfer.

Trigger

No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Transfer Method	Notify
1	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
2	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
3	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
4	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
5	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-

3. Check [Enable Image Buffer/Transfer], select [Timer] for the trigger, and click [Next>].



- Click [Delete Buffered Images] to delete images already buffered.
- Click [Save] to save the settings.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

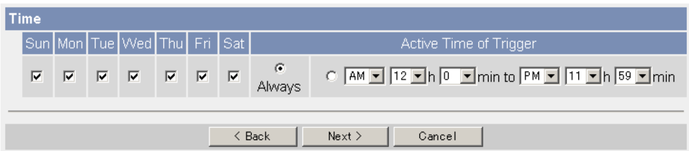
Note

- If you click [Save], all buffered images on the internal memory and SD memory card are deleted.

Setting	Description
Enable Image Buffer/Transfer	• Check the box to enable the buffer/transfer. Uncheck the box to disable it.

Setting	Description
Trigger	• Selecting [Timer] enables the camera to buffer/transfer images by timer. • Selecting [Alarm 1 or 2] enables the camera to buffer/transfer images by alarm signal. • Selecting [Motion Detection] enables the camera to buffer/transfer images when the motion is detected.

4. Set the time, and click [Next>].



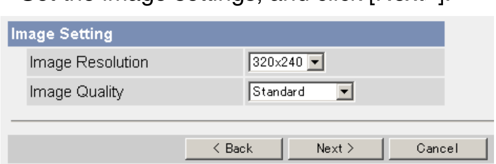
Note

The timer works by an internal clock. Set the date and time before using timer buffer/transfer (see page 67).

- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Setting	Description
Day of the week	• Check the box to enable the day. Uncheck the box to disable it.
Active Time of Trigger	• To set a trigger time, check the time option and set a time period. Check the [Always] option if you are not specifying a time period.

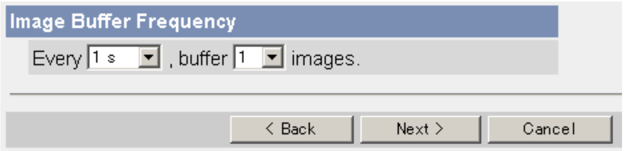
5. Set the image settings, and click [Next>].



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Setting	Description
Image Resolution	• Select an image resolution (640 x 480, 320 x 240 (default) or 160 x 120 pixels) for the buffer/transfer.
Image Quality	• Select the image quality. [Favor Clarity] optimizes for good quality. [Standard] offers standard quality. [Favor Motion] optimizes for enhanced motion. [Mobile Phone] is for a transfer to a cell phone. **Note** • 640 x 480 pixels cannot be set for a transfer to a cell phone.

6. Set the image buffer frequency, and click [Next>].



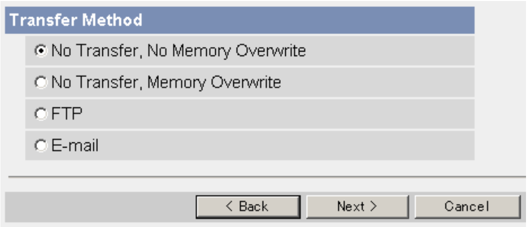
- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- Due to the network environment, object, the number of simultaneous accesses, enabling IPsec or SD memory recording, the camera may not record number of images that you set. In this case, set the image buffer frequency longer.
- Set Every [1 s], buffer [1] images for the SD memory recording.

Setting	Description
Image Buffer Frequency	• Select an image buffer frequency to buffer or transfer the image. (1 image per hour—30 images per second)

7. Select the transfer method, and click [Next>].



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

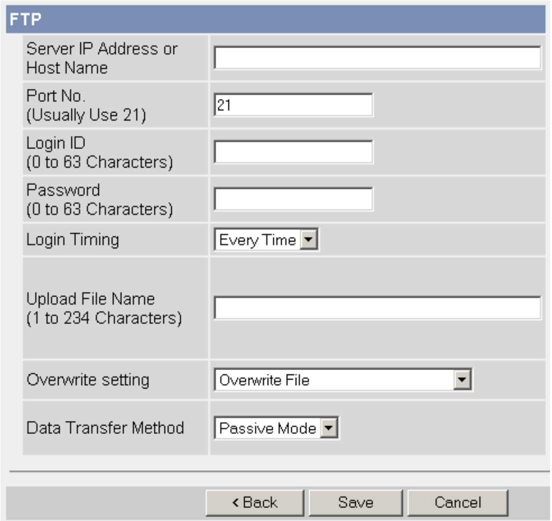
<u>Note</u>

- If you transfer images by E-mail or FTP, confirm that the default gateway and DNS server addresses are assigned correctly (see page 41 or page 45).

Setting	Description
No Transfer, No Memory Overwrite	• If the internal memory or the SD memory card is full, the camera stops buffering.
No Transfer, Memory Overwrite	• If the internal memory or the SD memory card is full, the camera deletes the old images, and continues to buffer the image.
FTP	• The camera transfers the image to an FTP server (see page 88).
E-mail	• The camera transfers the image by E-mail (see page 90).

When you set [FTP] for Transfer Method

Select [FTP], and click [Next>]. The following page is displayed.



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

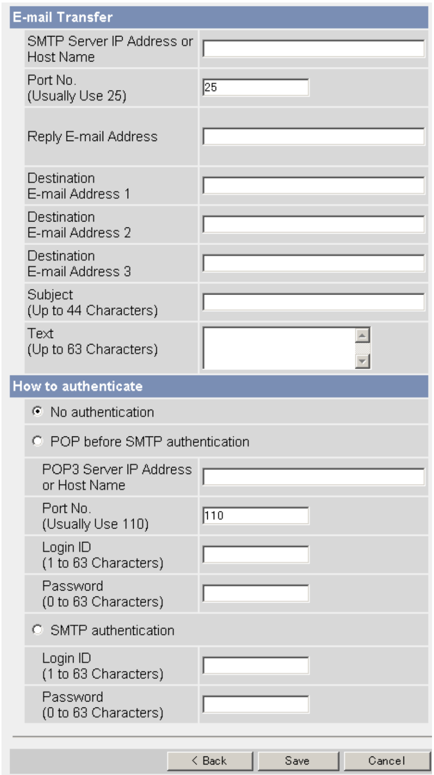
Setting	Description
Server IP Address or Host Name[*1]	• If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 21.
Login ID[*2]	• If your ISP requires a login ID, set it (0—63 characters).
Password[*2]	• If your ISP requires a password, set it (0—63 characters).
Login Timing	• Select the login setting for the FTP server. If you set [One Time] and the image buffer frequency value is set within 1 minute, the camera logs in to the server only once. This can reduce transfer time.
Upload File Name[*1]	• Set a file name on the FTP server to receive the transferred files. Enter 1—234 characters. Server directories can be included by entering "\". The directories to be specified should be created beforehand. (E.g. NetworkCamera\image)

Setting	Description
Overwrite Setting	• Selecting [Overwrite File] overwrites the image on the server with a newer image. Selecting [Save as New File with Time Stamp] saves the image attaching time stamps on the file name, and the images are not overwritten. E.g. image20060101093020500.jpg The underlined numbers mean "9h30min20s500ms on January 1, 2006". The letter "s" is inserted after the day when referring to a daylight saving time zone.
Data Transfer Method	• Select [Passive Mode] normally. If the transfer does not work, select [Active Mode] and check the operation.

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

When you set [E-mail] for Transfer Method

Select [E-mail], and click [Next>]. The following page is displayed.



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- The camera works only with an SMTP (Simple Mail Transfer Protocol) server. It does not work with mail servers like "Hotmail®" that use a web browser.
- The date and time (24-h format) is automatically attached to the subject on the E-mail. The file name is "image.jpg".
  E.g. When the "camera" is entered on the subject:
  "camera:20060101093020500".
  The underlined numbers mean "9h30min20s500ms on January 1, 2006". The letter "s" is inserted after the day when referring to a daylight saving time zone.

Setting	Description
SMTP Server IP Address or Host Name*1	• If you set a server IP address, set 4 numbers (0—255) and 3 periods such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 25.
Reply E-mail Address*2	• Set the sender's E-mail address. We recommend you to set the administrator's E-mail address.
Destination E-mail Address*2 1—3	• Set the destination E-mail address (up to 3).
Subject*2	• Enter a subject with ASCII characters (see page 176) or characters from other languages (0—44 characters for a 1-byte character and 0—22 characters for a 2-byte character).
Text*2	• Enter text with ASCII characters (see page 176) or characters from other languages (0—63 characters for a 1-byte character and 0—31 characters for a 2-byte character). Note that [end-of-line] key is not available.

<table>
<tr><th>Setting</th><th>Description</th></tr>
<tr><td>How to authenticate</td><td>
The authentication method can be selected:
[No authentication], [POP before SMTP authentication] or [SMTP authentication].
POP server authentication may be required by your ISP. In that case, set POP before SMTP authentication.
• No authentication: No authentication when sending an e-mail.
• POP before SMTP authentication: Some SMTP servers that send e-mails do not have an authentication feature. Therefore, the camera uses the authentication of a POP server that receives e-mails, before sending e-mails.
– POP3 Server IP Address or Host Name*1: If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (0—255 characters).
You can set an IPv6 address.
– Port No.: Enter a number (1—65535). Usually set to 110.
– Login ID*2: If your ISP requires a login ID to log in to a POP3 server, set it (1—63 characters).
– Password*2: If your ISP requires a password to log in to a POP3 server, set it (0—63 characters).
• SMTP authentication: Users are authenticated by user name and password on the SMTP server. Your ISP must support the SMTP authentication. The supported SMTP authentications of the camera are the LOGIN and PLAIN authentications.
– Login ID*2: If your ISP requires a login ID to log in to an SMTP server, set it (1—63 characters).
– Password*2: If your ISP requires a password to log in to an SMTP server, set it (0—63 characters).
</td></tr>
</table>

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

8. Confirm the settings, and click [Save].
- The new settings are saved.
- When finished, "Success!" is displayed.

9. Click [Go to Trigger page].
- The Trigger page is displayed.

Note

- If you click [Save] on the Trigger page, all buffered images on the internal memory and SD memory card are deleted.
- If you are buffering images to the internal memory, the following operations also delete all buffered images.
  - Turning off or restarting the camera.
  - Updating the camera.
  - Resetting the camera to default.
  - Saving the Date and Time page.

4.3 Buffering or Transferring Images by Alarm Signal

You can buffer the camera images, transfer to an FTP server or send E-mails using alarm as a trigger.
The Trigger page allows you to enable image buffer/transfer by E-mail or FTP.

Note

- If you are recording images to the SD memory card, refresh interval slows down.
- To buffer/transfer images by alarm signal, an alarm must be connected to the external I/O (see page 151).

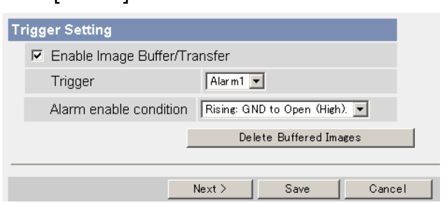
1. Click [Trigger] on the Setup page.

2. Click a **No**. to enable buffer/transfer.

Trigger

No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Transfer Method	Notify
1	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
2	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
3	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
4	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
5	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-

3. Check [Enable Image Buffer/Transfer], select [Alarm 1 or 2] for the trigger, select [Rising: GND to Open (High).] or [Falling: Open (High) to GND.] and click [Next>].



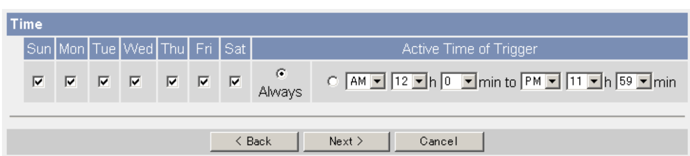
- Click [Delete Buffered Images] to delete images already buffered.
- Click [Save] to save the settings.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- If you click [Save], all buffered images on the internal memory and SD memory card are deleted.

Setting	Description
Enable Image Buffer/Transfer	• Check the box to enable the buffer/transfer. Uncheck the box to disable it.
Trigger	• Selecting [Timer] enables the camera to buffer/transfer images by timer. • Selecting [Alarm 1 or 2] enables the camera to buffer/transfer images by alarm signal. • Selecting [Motion Detection] enables the camera to buffer/transfer images when the motion is detected.
Alarm enable condition	• Select a method of detection for an alarm connected to the External I/O terminal. Select [Rising: GND to Open (High).] or [Falling: Open (High) to GND.]. [Rising: GND to Open (High).] is the state when GND pin and pin 1 or pin 2 is left open. [Falling: Open (High) to GND.] is the state when GND pin and pin 1 or pin 2 are short-circuited. (See page 151)

4. Set the time, and click [Next>].



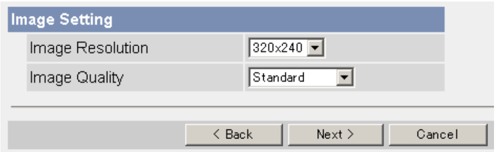
- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- The timer works by an internal clock. Set the date and time before using timer buffer/transfer (see page 67).

Setting	Description
Day of the week	• Check the box to enable the day. Uncheck the box to disable it.
Active Time of Trigger	• To set a trigger time, check the time option and set a time period. Check the [Always] option if you are not specifying a time period.

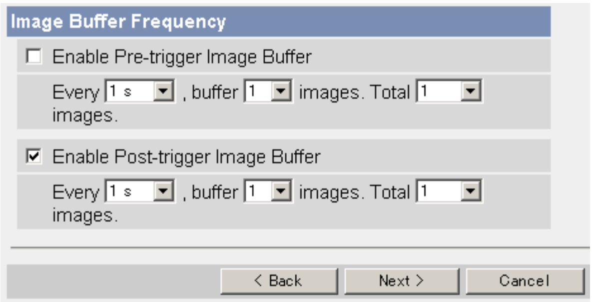
5. Set the image settings, and click [Next>].



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Setting	Description
Image Resolution	• Select an image resolution (640 x 480, 320 x 240 (default) or 160 x 120 pixels) for the buffer/transfer.
Image Quality	• Select the image quality. [Favor Clarity] optimizes for good quality. [Standard] offers standard quality. [Favor Motion] optimizes for enhanced motion. [Mobile Phone] is for a transfer to a cell phone. **Note** • 640 x 480 pixels cannot be set for a transfer to a cell phone.

6. Set the image buffer frequency, and click [Next>].



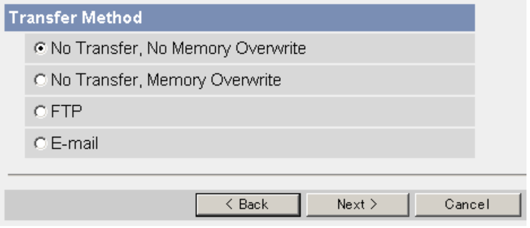
- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- Due to the network environment, object, the number of simultaneous accesses, enabling IPsec or SD memory recording, the camera may not record number of images that you set. In this case, set the image buffer frequency longer.
- Set Every [1 s], buffer [1] images for the SD memory recording.

Setting	Description
Enable Pre-trigger Image Buffer	• Check the box to enable the setting. The camera buffers or transfers the image right before the alarm signal is detected. • Set an interval, number of images to buffer and total number. The number of buffered images may not match the total number (see page 177) due to memory capacity, image resolution, image quality or what object you view.
Enable Post-trigger Image Buffer	• Check the box to enable the setting. The camera buffers or transfers the image right after the alarm signal is detected. • Set an interval, number of images to buffer and total number. The number of buffered images may not match the total number (see page 177) due to memory capacity, image resolution, image quality or what object you view.

7. Select the transfer method, and click [Next>].



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

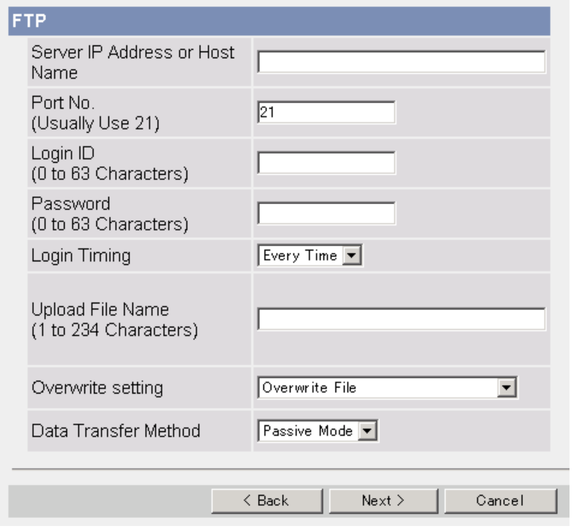
Note

- If you transfer images by E-mail or FTP, confirm that the default gateway and DNS server addresses are assigned correctly (see page 41 or page 45).

Setting	Description
No Transfer, No Memory Overwrite	• If the internal memory or the SD memory card is full, the camera stops buffering.
No Transfer, Memory Overwrite	• If the internal memory or the SD memory card is full, the camera deletes the old images, and continues to buffer the image.
FTP	• The camera transfers the image to an FTP server (see page 99).
E-mail	• The camera transfers the image by E-mail (see page 101).

When you set [FTP] for Transfer Method

Select [FTP], and click [Next>]. The following page is displayed.



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

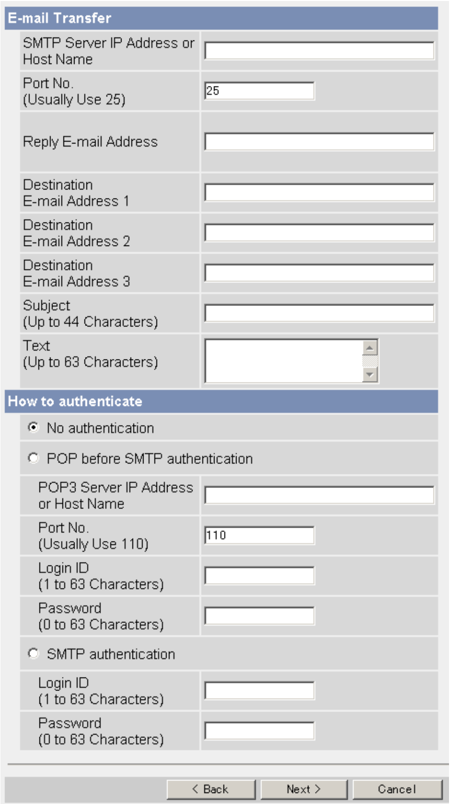
Setting	Description
Server IP Address or Host Name[*1]	• If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 21.
Login ID[*2]	• If your ISP requires a login ID, set it (0—63 characters).
Password[*2]	• If your ISP requires a password, set it (0—63 characters).
Login Timing	• Select the login setting for the FTP server. If you set [One Time] and the image buffer frequency value is set within 1 minute, the camera logs in to the server only once. This can reduce transfer time.
Upload File Name[*1]	• Set a file name on the FTP server to receive the transferred files. Enter 1—234 characters. Server directories can be included by entering "\". The directories to be specified should be created beforehand. (E.g. NetworkCamera\image)

Setting	Description
Overwrite Setting	• Selecting [Overwrite File] overwrites the image on the server with a newer image. Selecting [Save as New File with Time Stamp] saves the image attaching time stamps on the file name, and the images are not overwritten. E.g. image20060101093020500.jpg The underlined numbers mean “9h30min20s500ms on January 1, 2006”. The letter “s” is inserted after the day when referring to a daylight saving time zone.
Data Transfer Method	• Select [Passive Mode] normally. If the transfer does not work, select [Active Mode] and check the operation.

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

When you set [E-mail] for Transfer Method

Select [E-mail], and click [Next>]. The following page is displayed.



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

<u>Note</u>

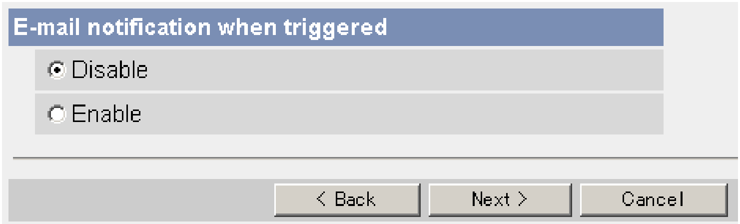
- The camera works only with an SMTP (Simple Mail Transfer Protocol) server. It does not work with mail servers like "Hotmail" that use a web browser.
- The date and time (24-h format) is automatically attached to the subject on the E-mail. The file name is "image.jpg".
  E.g. When the "camera" is entered on the subject:
  "camera:20060101093020500".
  The underlined numbers mean "9h30min20s500ms on January 1, 2006". The letter "s" is inserted after the day when referring to a daylight saving time zone.

Setting	Description
SMTP Server IP Address or Host Name*1	• If you set a server IP address, set 4 numbers (0—255) and 3 periods such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 25.
Reply E-mail Address*2	• Set the sender's E-mail address. We recommend you to set the administrator's E-mail address.
Destination E-mail Address*2 1—3	• Set the destination E-mail address (up to 3).
Subject*2	• Enter a subject with ASCII characters (see page 176) or characters from other languages (0—44 characters for a 1-byte character and 0—22 characters for a 2-byte character).
Text*2	• Enter text with ASCII characters (see page 176) or characters from other languages (0—63 characters for a 1-byte character and 0—31 characters for a 2-byte character). Note that [end-of-line] key is not available.

Setting	Description
How to authenticate	The authentication method can be selected: [No authentication], [POP before SMTP authentication] or [SMTP authentication]. **POP server authentication may be required by your ISP. In that case, set POP before SMTP authentication.** • No authentication: No authentication when sending an e-mail. • POP before SMTP authentication: Some SMTP servers that send e-mails do not have an authentication feature. Therefore, the camera uses the authentication of a POP server that receives e-mails, before sending e-mails. – POP3 Server IP Address or Host Name[*1]: If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (0—255 characters). You can set an IPv6 address. – Port No.: Enter a number (1—65535). Usually set to 110. – Login ID[*2]: If your ISP requires a login ID to log in to a POP3 server, set it (1—63 characters). – Password[*2]: If your ISP requires a password to log in to a POP3 server, set it (0—63 characters). • SMTP authentication: Users are authenticated by user name and password on the SMTP server. Your ISP must support the SMTP authentication. The supported SMTP authentications of the camera are the LOGIN and PLAIN authentications. – Login ID[*2]: If your ISP requires a login ID to log in to an SMTP server, set it (1—63 characters). – Password[*2]: If your ISP requires a password to log in to an SMTP server, set it (0—63 characters).

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

8. After you confirm the settings and click [Next>], set E-mail notification and click [Next>].



- If you select [Enable], the E-mail Notification When Triggered page is displayed. Enter the settings referring to page 102—103.

Setting	Description
Disable	• The camera does not send an E-mail notification when buffering or transferring images.
Enable	• The camera sends an E-mail notification (up to 3 destinations) when buffering or transferring images.

9. Click [Save] after confirming the settings.

- The new settings are saved.
- When finished, "Success!" is displayed.

Note

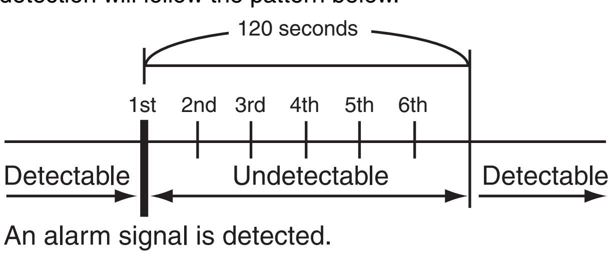
- If you click [Save], all buffered images on the internal memory and SD memory card are deleted.

10. Click [Go to Trigger page].

- The Trigger page is displayed.

Note

- If you set a short interval when transferring images to a cell phone, many E-mails will be sent, which may lead to a large phone bill. Therefore, we recommend you to set a long interval. 1 image per second frequency is recommended.
- Alarm transfer stops operating until after the camera finishes all transfers. For example, if the camera transfers 3 images per minute and 6 images in total, alarm detection will follow the pattern below.



- If you are buffering images to the internal memory, the following operations also delete all buffered images.
  - Turning off or restarting the camera.
  - Updating the camera.
  - Resetting the camera to default.
  - Saving the Date and Time page.

4.4 Buffering or Transferring Images by Motion Detection Signal

Camera has a Motion Detection feature that detects movement, such as people, based on the preset threshold and sensitivity of Camera. You can buffer the camera images, transfer to an FTP server or send E-mails using the Motion Detection function as a trigger.

The Trigger page allows you to enable image buffer/transfer by E-mail or FTP.

Note

- The level of motion detection depends on resolution, image quality, and the object being viewed. Check the level by performing motion detection recording. (see page 120).
- Enabling Motion Detection delays the frame rate of the camera.
- A change to light or wind conditions may detect motions accidentally.
- Motion Detection may not work in dark areas.
- Objects moving fast may not be detected.
- The Motion Detection is disabled while tilting.

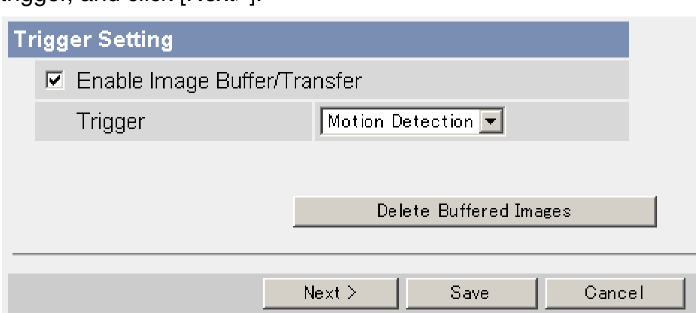
1. Click [Trigger] on the Setup page.

2. Click a **No.** to enable Trigger.

Trigger

No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Transfer Method	Notify
1	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
2	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
3	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
4	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
5	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-

3. Check [Enable Image Buffer/Transfer], select [Motion Detection] for the trigger, and click [Next>].



- Click [Delete Buffered Images] to delete images already buffered.

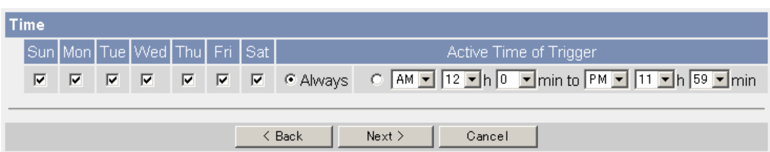
- Click [Save] to save the settings.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- If you click [Save], all buffered images on the internal memory and SD memory card are deleted.

Setting	Description
Enable Image Buffer/Transfer	• Check the box to enable the Trigger setting. Uncheck the box to disable it.
Trigger	• Selecting [Timer] enables the camera to buffer/transfer images by timer. • Selecting [Alarm 1 or 2] enables the camera to buffer/transfer images by alarm signal. • Selecting [Motion Detection] enables the camera to buffer/transfer images when the motion is detected.

4. Set the time, and click [Next>].



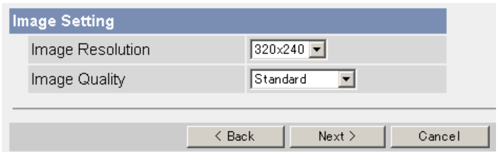
- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- The timer works by an internal clock. Set the date and time before using timer buffer/transfer (see page 67).

Setting	Description
Day of the week	• Check the box to enable the Trigger setting. Uncheck the box to disable it.
Active Time of Trigger	• To set a trigger time, check the time option and set a time period. Check the [Always] option if you are not specifying a time period.

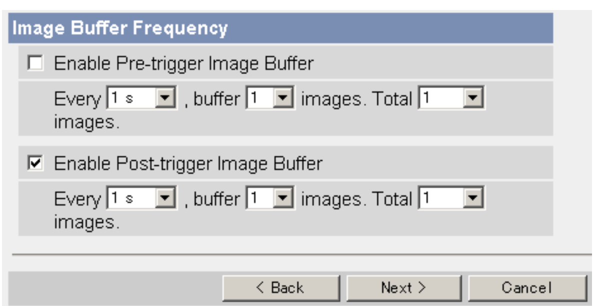
5. Set the image settings, and click [Next>].



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Setting	Description
Image Resolution	• Select an image resolution (640 × 480, 320 × 240 (default) or 160 × 120 pixels) for the buffer/transfer.
Image Quality	• Select the image quality. [Favor Clarity] optimizes for good quality. [Standard] offers standard quality. [Favor Motion] optimizes for enhanced motion. [Mobile Phone] is for a transfer to a cell phone. **Note** • 640 × 480 pixels cannot be set for a transfer to a cell phone.

6. Set the image buffer frequency, and click [Next>].



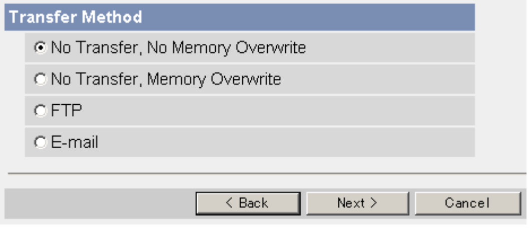
- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- Due to the network environment, object, the number of simultaneous access, enabling IPsec or SD memory recording, the camera may not record number of images that you set. In this case, set the image buffer frequency longer.
- Set Every [1 s], buffer [1] images for the SD memory recording.

Setting	Description
Enable Pre-trigger Image Buffer	• Check the box to enable the setting. The camera buffers or transfers the image right before the motion detection signal is detected. • Set an interval, number of images to buffer and total number. The number of buffered images may not match the total number (see page 177) due to memory capacity, image resolution, image quality or what object you view.
Enable Post-trigger Image Buffer	• Check the box to enable the setting. The camera buffers or transfers the image right after the motion detection signal is detected. • Set an interval, number of images to buffer and total number. The number of buffered images may not match the total number (see page 177) due to memory capacity, image resolution, image quality or what object you view.

7. Select the transfer method, and click [Next>].



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

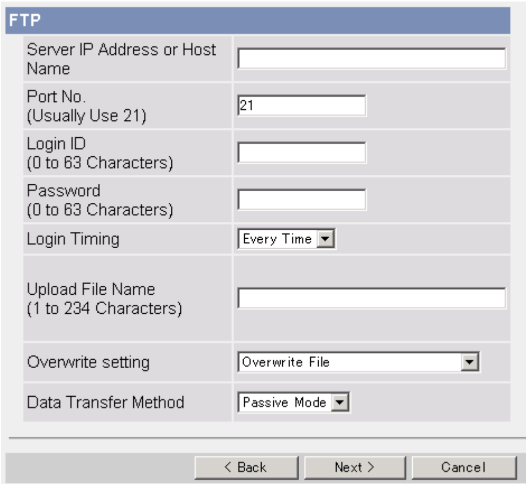
Note

- If you transfer images by E-mail or FTP, confirm that the default gateway and DNS server addresses are assigned correctly (see page 41 or page 45).

Setting	Description
No Transfer, No Memory Overwrite	• If the internal memory or the SD memory card is full, the camera stops buffering.
No Transfer, Memory Overwrite	• If the internal memory or the SD memory card is full, the camera deletes the old images, and continues to buffer the image.
FTP	• The camera transfers the image to an FTP server (see page 111).
E-mail	• The camera transfers the image by E-mail (see page 113).

When you set [FTP] for Transfer Method

Select [FTP], and click [Next>]. The following page is displayed.



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

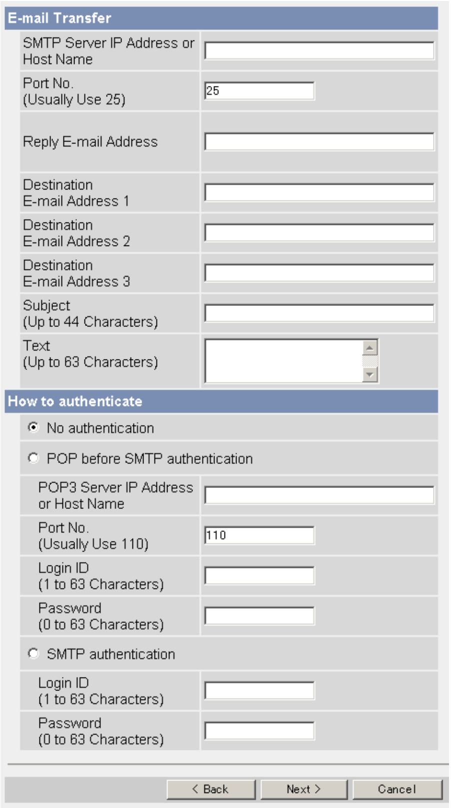
Setting	Description
Server IP Address or Host Name[*1]	• If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 21.
Login ID[*2]	• If your ISP requires a login ID, set it (0—63 characters).
Password[*2]	• If your ISP requires a password, set it (0—63 characters).
Login Timing	• Select the login setting for the FTP server. If you set [One Time] and the image buffer frequency value is set within 1 minute, the camera logs in to the server only once. This can reduce transfer time.
Upload File Name[*1]	• Set a file name on the FTP server to receive the transferred files. Enter 1—234 characters. Server directories can be included by entering "\". The directories to be specified should be created beforehand. (E.g. NetworkCamera\image)

Setting	Description
Overwrite Setting	• Selecting [Overwrite File] overwrites the image on the server with a newer image. Selecting [Save as New File with Time Stamp] saves the image attaching time stamps on the file name, and the images are not overwritten. E.g. image20060101093020500.jpg The underlined numbers mean "9h30min20s500ms on January 1, 2006". The letter "s" is inserted after the day when referring to a daylight saving time zone.
Data Transfer Method	• Select [Passive Mode] normally. If the transfer does not work, select [Active Mode] and check the operation.

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

When you set [E-mail] for Transfer Method

Select [E-mail], and click [Next>]. The following page is displayed.



- Clicking [<Back] takes you back to the previous page.
- Clicking [Cancel] takes you back to the Trigger page without saving changes.

Note

- The camera works only with an SMTP (Simple Mail Transfer Protocol) server. It does not work with mail servers like "Hotmail" that use a web browser.
- The date and time (24-h format) is automatically attached to the subject on the E-mail. The file name is "image.jpg".
  E.g. When the "camera" is entered on the subject:
  "camera:20060101093020500".
  The underlined numbers mean "9h30min20s500ms on January 1, 2006".

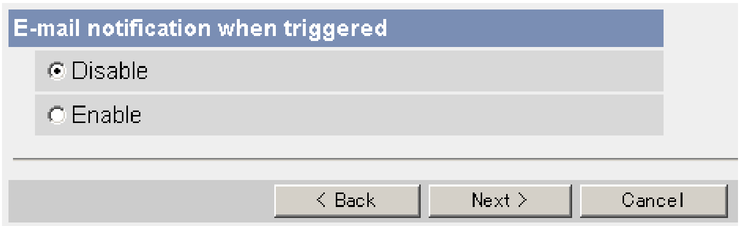
The letter "s" is inserted after the day when referring to a daylight saving time zone.

Setting	Description
SMTP Server IP Address or Host Name*1	• If you set a server IP address, set 4 numbers (0—255) and 3 periods such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 25.
Reply E-mail Address*2	• Set the sender's E-mail address. We recommend you to set the administrator's E-mail address.
Destination E-mail Address*2 1—3	• Set the destination E-mail address (up to 3).
Subject*2	• Enter a subject with ASCII characters (see page 176) or characters from other languages (0—44 characters for a 1-byte character and 0—22 characters for a 2-byte character).
Text*2	• Enter text with ASCII characters (see page 176) or characters from other languages (0—63 characters for a 1-byte character and 0—31 characters for a 2-byte character). Note that [end-of-line] key is not available.

Setting	Description
How to authenticate	The authentication method can be selected: [No authentication], [POP before SMTP authentication] or [SMTP authentication]. **POP server authentication may be required by your ISP. In that case, set POP before SMTP authentication.** • No authentication: No authentication when sending an e-mail. • POP before SMTP authentication: Some SMTP servers that send e-mails do not have an authentication feature. Therefore, the camera uses the authentication of a POP server that receives e-mails, before sending e-mails. – POP3 Server IP Address or Host Name[*1]: If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (0—255 characters). You can set an IPv6 address. – Port No.: Enter a number (1—65535). Usually set to 110. – Login ID[*2]: If your ISP requires a login ID to log in to a POP3 server, set it (1—63 characters). – Password[*2]: If your ISP requires a password to log in to a POP3 server, set it (0—63 characters). • SMTP authentication: Users are authenticated by user name and password on the SMTP server. Your ISP must support the SMTP authentication. The supported SMTP authentications of the camera are the LOGIN and PLAIN authentications. – Login ID[*2]: If your ISP requires a login ID to log in to an SMTP server, set it (1—63 characters). – Password[*2]: If your ISP requires a password to log in to an SMTP server, set it (0—63 characters).

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

8. After you confirm the settings and click [Next>], set E-mail notification and click [Next>].



- If you select [Enable], the E-mail Notification When Triggered page is displayed. Enter the settings referring to page 114–115.

Setting	Description
Disable	• The camera does not send an E-mail notification when buffering or transferring images.
Enable	• The camera sends an E-mail notification (up to 3 destinations) when buffering or transferring images.

9. Click [Save] after confirming the settings.

- The new settings are saved.
- When finished, "Success!" is displayed.

Note

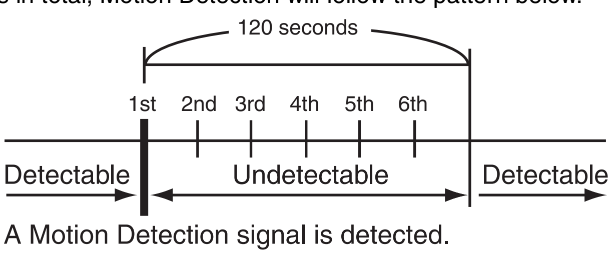
- If you click [Save], all buffered images on the internal memory and SD memory card are deleted.

10. Click [Go to Trigger page].

- The Trigger page is displayed.

Note

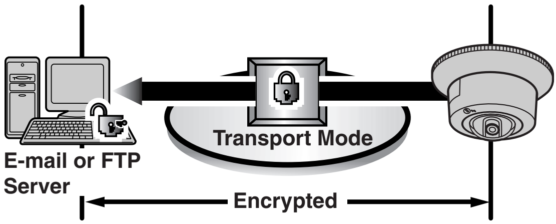
- If you set a short interval when transferring images to a cell phone, many E-mails will be sent, which may lead to a large phone bill. Therefore, we recommend you to set a long interval. 1 image per minute frequency is recommended.
- Motion Detection transfer stops operating until after the camera finishes all transfers. For example, if the camera transfers 3 images per minute and 6 images in total, Motion Detection will follow the pattern below.



- If you are buffering images to the internal memory, the following operations also delete all buffered images.
  - Turning off or restarting the camera.
  - Updating the camera.
  - Resetting the camera to default.
  - Saving the Date and Time page.

4.5 Transferring Camera Images in Transport Mode

The camera can transfer images in transport mode by E-mail or FTP.



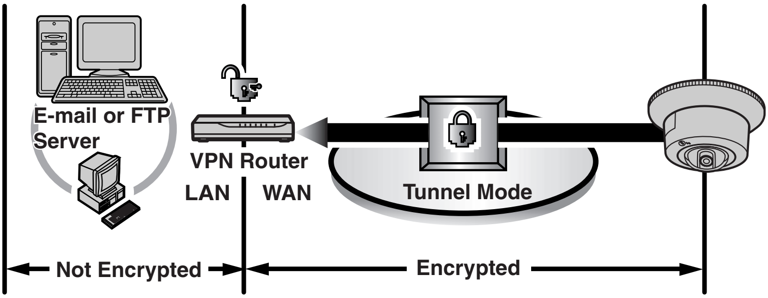
Prepare the following required items:

Item	Supported Feature	
E-mail or FTP Server	Operating System	: IPsec supported
	ISP Service	: A service for multiple static global addresses (A global address must be set up to the server.)
Camera	ISP Service	: A service for multiple static global addresses (A global address must be set up to the camera.)

See page 50 and set up the E-mail or FTP server.

4.6 Transferring Camera Images in Tunnel Mode

The camera can transfer images in tunnel mode by E-mail or FTP.



Prepare the following required items:

Item	Supported Feature		
VPN Router	ISP Service (in IPv4)	:	A service for static global addresses (A global address must be set up to the WAN side.)
	ISP Service (in IPv6)	:	An "IPv4/IPv6 Dual-Stack" or "IPv6 over IPv4 Tunneling" service
Camera	ISP Service (in IPv4)	:	A service for multiple static global addresses (A global address must be set up to the camera.)
	ISP Service (in IPv6)	:	An "IPv4/IPv6 Dual-Stack" or "IPv6 over IPv4 Tunneling" service

See page 53 and set up the E-mail or FTP server.

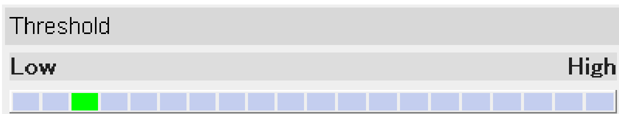
4.7 Setting the Motion Detection

The Motion Detection page allows you to adjust the sensitivity of Motion Detection.

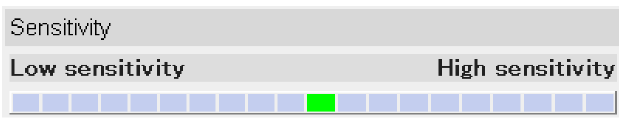
Threshold: If the threshold is set low, this function detects nearly all movements.

Sensitivity: If you set sensitivity high, the amplitude of the motion detection bar gets jumpy.

1. Click [Motion Detection] on the Setup page.
2. Click the Motion Detection bar in Threshold to set the threshold level.



3. Click the Motion Detection bar in Sensitivity to set the sensitivity level.



4. Click [Save] to save the settings.
    - Clicking [Cancel] cancels your settings without saving changes.
5. Click [Go to Motion Detection page].
    - The Motion Detection page is displayed.

Setting	Description
Threshold	• Adjusts the threshold for Motion Detection. As the value is set lower, the sensor will detect motions of smaller changes.
Sensitivity	• Adjusts the sensitivity for Motion Detection. As the value is set higher, the amplitude of the Motion Detection bar will become greater.

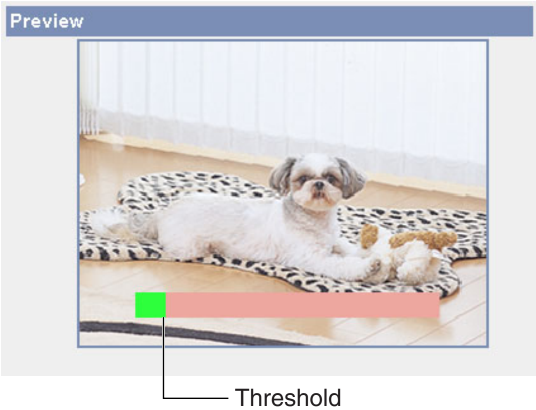
Note

- The Motion Detection is disabled while tilting.

Preview

Display the current threshold and detection level.

- The threshold is the line between the green and red bar.
- The detection level is the line between the dark red and light red color.
- The Threshold and Sensitivity settings are enabled after saving, and reflected in preview.
- The administrator can tilt the camera by using the Click to Center feature.



Note

- No responsibility will be taken by our company with respect to consequences resulting from the use of the Motion Detection feature. The Motion Detection feature is not suitable and not recommended for uses that require a high reliability constantly such as surveillance, etc.

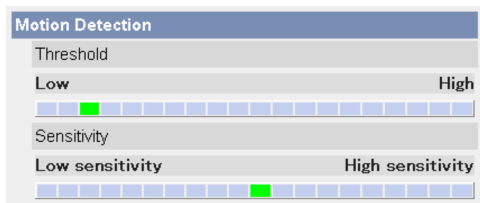
What is “threshold”?

The threshold is the minimum value for the camera to detect motions on the image during the motion detection buffering. Setting the threshold lower allows subtler changes to be detected. Setting the threshold higher allows only bigger changes that might occupy half the image to be detected.

What is “sensitivity”?

The sensitivity is the level of brightness detected as motion by the camera. A high sensitivity setting enables the camera to detect slight brightness changes. Lower the sensitivity to make the camera detect only big brightness changes.



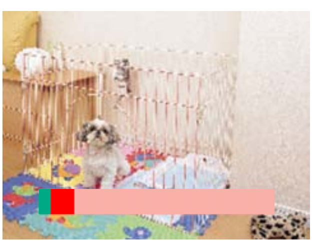


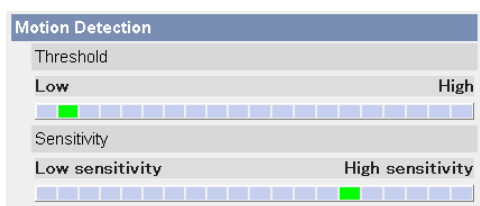
The Threshold is displayed.

Only motion above the Threshold is detected.

Note

- Lowering the threshold and increasing sensitivity enables the camera to detect slight movements easily.





Note

- Motion Detection is activated by changes in the outline of objects and brightness changes. This feature is designed to decrease false detections due to overall brightness changes caused by sunlight. But in some cases, the camera may falsely detect rapid brightness changes by artificial light such as fluorescent light. In other cases, the motion detection function on the Network Camera Recorder may detect objects and brightness changes. The way to detect motion differs between the camera and the Network Camera Recorder (customer-provided).

Additionally, if the object's color is similar to the color of the background, motion can be hard to detect.

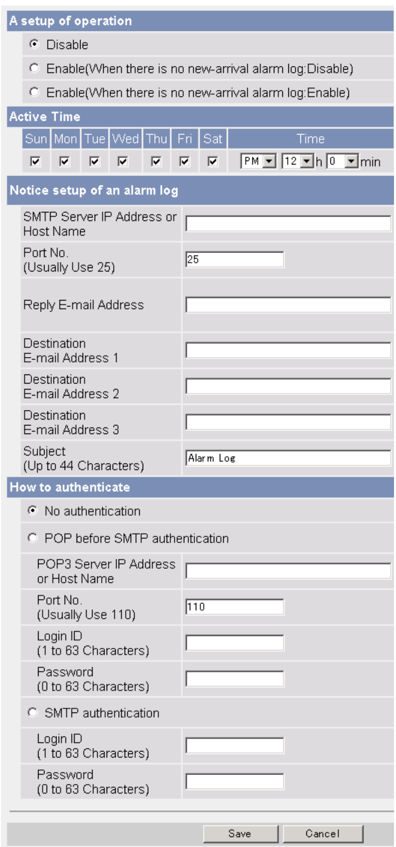
- The detection level depends on the object, resolution, or image quality. Confirm the condition on the Preview window following the procedure above.

4.8 Setting Alarm Log Notification

An alarm log sent once a day at a specified time can be checked. To enable Alarm Log, set Alarm 1, Alarm 2 or Motion Detection for Trigger Setting and check [Enable].

1. Click [Alarm Log] on the Setup page.
   - When selecting Alarm1, Alarm2 or Motion Detection in Trigger page, the Alarm log window is displayed.

2. Set each parameter.



3. Click [Save].
   - Clicking [Cancel] cancels your settings without saving changes.

4. Click [Go to Alarm Log page].

Note

- When the settings are saved, the number of new alarm logs becomes 0.
- The camera works only with an SMTP (Simple Mail Transfer Protocol) server. It does not work with mail servers like "Hotmail" that use a web browser.

Setting	Description
A setup of operation	• Alarm log operation can be set here.
Time	• Set the day of the week and time to send alarm logs via E-mail.
SMTP Server IP Address or Host Name*1	• If you set a server IP address, set 4 numbers (0—255) and 3 periods such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (1—255 characters). • You can set an IPv6 address.
Port No.	• Enter the number (1—65535). Usually set to 25.
Reply E-mail Address*2	• Set the sender's E-mail address. We recommend you to set the administrator's E-mail address.
Destination E-mail Address*2 1—3	• Set the destination E-mail address (up to 3).
Subject*2	• Enter a subject with ASCII characters (see page 176) or characters from other languages (0—44 characters for a 1-byte character and 0—22 characters for a 2-byte character).

Setting	Description
How to authenticate	The authentication method can be selected: [No authentication], [POP before SMTP authentication] or [SMTP authentication]. **POP server authentication may be required by your ISP. In that case, set POP before SMTP authentication.** • No authentication: No authentication when sending an e-mail. • POP before SMTP authentication: Some SMTP servers that send e-mails do not have an authentication feature. Therefore, the camera uses the authentication of a POP server that receives e-mails, before sending e-mails. – POP3 Server IP Address or Host Name[*1]: If you set a server IP address, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available. Or set a host name (0—255 characters). You can set an IPv6 address. – Port No.: Enter a number (1—65535). Usually set to 110. – Login ID[*2]: If your ISP requires a login ID to log in to a POP3 server, set it (1—63 characters). – Password[*2]: If your ISP requires a password to log in to a POP3 server, set it (0—63 characters). • SMTP authentication: Users are authenticated by user name and password on the SMTP server. Your ISP must support the SMTP authentication. The supported SMTP authentications of the camera are the LOGIN and PLAIN authentications. – Login ID[*2]: If your ISP requires a login ID to log in to an SMTP server, set it (1—63 characters). – Password[*2]: If your ISP requires a password to log in to an SMTP server, set it (0—63 characters).

*1 Note that [Space], ["], ['], [&], [<] and [>] are not available.
*2 Note that ["] is not available.

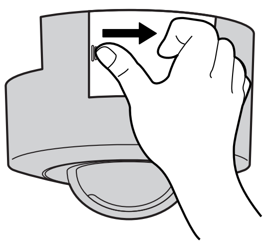
4.9 Using the SD Memory Card

The SD memory card (customer-provided) can store image data and replay them. Follow the instructions below to insert or remove the SD memory card.

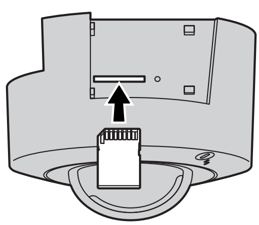
Note

- Format the SD memory card (see page 129) before you record the image data.
- The files recorded on the SD memory card can be viewed on your PC. Download the viewer software from the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** and install it on your PC.

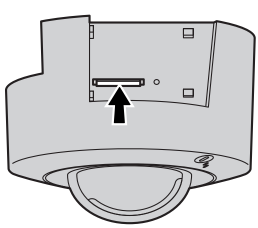
1. Remove the Ceiling Mounting Cover.
2. Remove the cover by pressing down slightly on the notch and pushing the cover to the right.



3. Insert the SD memory card as shown. The pins should face you.



4. Push the SD memory card in with your finger until it clicks. To remove the card, push the card lightly to release it, then remove it from the slot.



Note

- Sound cannot be recorded.
- Ensure that recording has been stopped, before removing the SD memory card. If the SD memory card is removed while recording, the image file will most likely become unreadable. In this case, format the SD memory card again. (Files will be deleted.)

5. Replace the cover firmly.
6. Attach the Ceiling Mounting Cover.

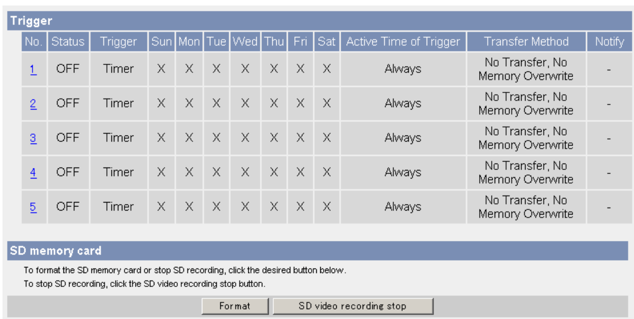
4.9.1 Format the SD Memory Card

Before you record the camera image, you need to format the SD memory card.

Note

- You can confirm the SD memory card capacity on the Status page.

1. Insert the SD memory card.
2. Click [Trigger] on the Setup page.
3. Click [Format].



Trigger

No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Transfer Method	Notify
1	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
2	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
3	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
4	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
5	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-

SD memory card

To format the SD memory card or stop SD recording, click the desired button below.
To stop SD recording, click the SD video recording stop button.

Format | SD video recording stop

4. Click [OK] on the confirmation window.
   - Format is complete.
5. Click [Go to Trigger page].
   - The Trigger page is displayed.

4.9.2 Start the SD Memory Recording

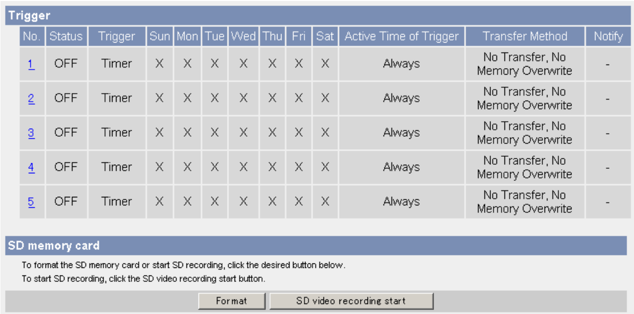
The SD memory recording can be started on the Trigger page.

Note

- You can confirm the SD memory card capacity on the Status page.
- If the camera is restarted, the SD memory recording starts again.
- If you remove the SD memory card and insert it again, the SD memory recording starts again.

1. Click [Trigger] on the Setup page.

2. Click [SD video recording start].



Trigger

No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Transfer Method	Notify
1	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
2	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
3	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
4	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
5	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-

SD memory card

To format the SD memory card or start SD recording, click the desired button below.
To start SD recording, click the SD video recording start button.

Format | SD video recording start

3. "SD video recording was started." is displayed.

- The SD memory recording is stopped.

4. Click [Go to Trigger page].

- The Trigger page is displayed.

Note

- Ensure that recording has stopped before removing the SD memory card. Do not remove the SD memory card, nor restart or turn off the camera while recording images on the card. Doing so can cause a decrease in SD memory card capacity, data corruption or camera malfunction.

4.9.3 Stop the SD Memory Recording

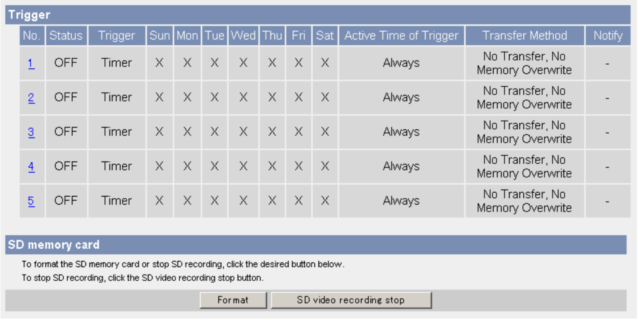
After you stop the SD memory recording, remove the SD memory card.

Note

- You can confirm the SD memory card capacity on the Status page.
- Images will be recorded to the SD memory card again by the following operations.
  - If the camera is restarted, the SD memory recording starts again.
  - If you remove the SD memory card and insert it again, the SD memory recording starts again.

1. Click [Trigger] on the Setup page.

2. Click [SD video recording stop].



No.	Status	Trigger	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Active Time of Trigger	Transfer Method	Notify
1	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
2	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
3	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
4	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-
5	OFF	Timer	X	X	X	X	X	X	X	Always	No Transfer, No Memory Overwrite	-

3. Click [OK] on the confirmation window.

- The SD memory recording is stopped.

4. Click [Go to Trigger page].

- The Trigger page is displayed.

Note

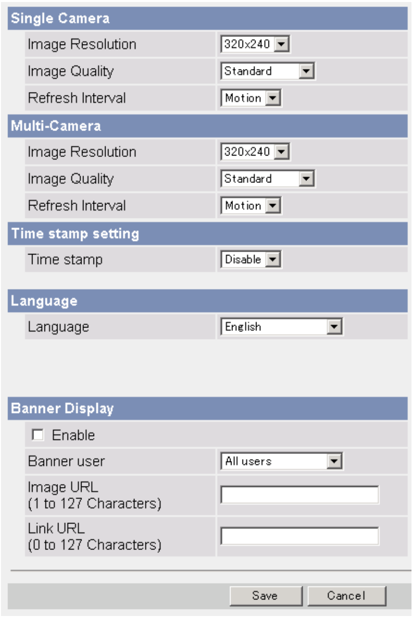
- Ensure that recording has stopped before removing the SD memory card. Do not remove the SD memory card, nor restart or turn off the camera while recording images on the card. Doing so can cause a decrease in SD memory card capacity, data corruption or camera malfunction.

5 Using Other Features

5.1 Changing Initial Settings on the Single Camera page or the Multi-Camera page

The Image Display page allows you to change the initial settings (display settings when a user accesses the camera) such as image resolution, image quality and the refresh interval. Also, you can set whether to display a time stamp on the image, select an initial language from one of the supported languages, and set whether to display the banner for the administrator or general users.

1. Click [Image Display] at the top of the page.
2. Set each parameter.



- Clicking [Cancel] cancels your settings without saving changes.

Setting	Description
Image Resolution	• Select the image resolution. 640 x 480 pixels (Only for the Single Camera page) 320 x 240 pixels (default) 160 x 120 pixels (Only for the Multi-Camera page)
Image Quality	• Select the image quality. [Favor Clarity] optimizes for good quality. [Standard] (default) offers standard quality. [Favor Motion] optimizes for enhanced motion.
Refresh Interval	• Select a refresh interval. Motion (default), 3 s, 5 s, 10 s, 30 s, and 60 s
Time stamp setting	• You can display a time stamp on the upper left side of the image. Select from [Enable] or [Disable (default)]. **Note** • If you enable this feature, the time is also stamped on the buffered image. • Set the AM/PM format and 24H format on the Date and Time page.
Language	• Select the initial language from English, Japanese, French, German, Italian, Spanish, Simplified Chinese, Russian or Korean. The selected language is displayed as the initial language on the Top, Single Camera, Multi-Camera and Buffered Image pages. If you select English, Japanese or Simplified Chinese, all pages can be changed. But if you select another language, the Setup, Maintenance and Support pages are displayed in English.
Banner Display	When checked to [Enable], the setting will be enabled. When unchecked, the setting will be disabled. **Note** • When the Banner Display is enabled, the camera accesses the Image URL every time the Single Camera page is displayed. The intermittent and continuous switching of the Single page burden the PC that stores the image linked with the URL. • If the image URL linked with an image stored in a PC that requires an authentication is set, the authentication window will be displayed when displaying the Single Camera page.

Setting	Description
• Banner user	• All users : The banner can be displayed for all users. Administrator only : The banner can be displayed for the administrator. General user only : The banner can be displayed for the general user.
• Image URL[*1]	• Enter the image URL you want to display as a banner. When [Enable] is checked, enter the image URL. (1—127 characters)
• Link URL[*1]	• Enter the target URL you want to display when clicking the banner. (0—127 characters)

*1 Note that [Space], ["], ['], [&], [<], and [>] are not available.

3. Click [Save] when finished.
- The new settings are saved.
- When finished, "Success!" is displayed.

4. Click [Go to Image Display page].
- The Image Display page is displayed.

5.2 Configuring Multiple Cameras

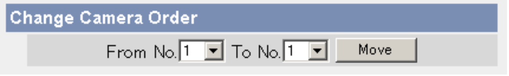
The Multi-Camera Setup page allows you to configure camera IP addresses and camera names to view multiple images on the Multi-Camera page. These configurations are required to use the Multi-Camera page. Up to 12 cameras can be configured. The Selfcamera is registered at No. 1 by default.

1. Click [Multi-Camera] on the Setup page.
2. Click **Add**.

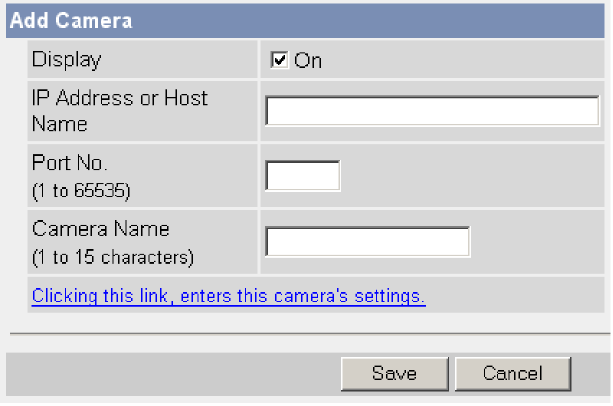
No.	Display	IP Address or Host Name	Port No.	Camera Name
1	On	selfcamera	--	********
Add				

Note

- If you click the camera number, the modification page is displayed. The camera settings can be modified or deleted here.
- If you configured multiple cameras, you can change the camera number. Select the number, and click [Move].



3. Set each parameter.



- Clicking [Cancel] cancels your settings without saving changes.
- By clicking [Clicking this link, enters this camera's settings.], the settings of the Selfcamera are entered automatically. "--" is displayed as the Port No, and the model no. is displayed as the Camera Name.

Setting	Description
Display	• Check this box to enable the camera.
IP Address[*1] or Host Name[*2]	• Set an IP address or host name to enable the camera.
Port No.	• Set a port number (1—65535).
Camera Name[*3]	• This camera name is displayed only on the Multi-Camera page.

*1 In IPv4, set 4 numbers (0—255) and 3 periods, such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available.
In IPv6, set the host name.

*2 Enter ASCII characters for the host name (see page 176). Note that [Space], ["], ['], [#], [&], [%], [=], [+], [?], [<] and [>] are not available.
Enter 1—255 characters.

*3 Enter ASCII characters (see page 176) or characters from other languages (1—15 characters for a 1-byte character and 1—7 characters for a 2-byte character). Note that [Space], ["], ['], [#], [&], [%], [=], [+], [?], [:], [<], and [>] are not available.

Note

- If your camera will only be accessed on your local network, use each camera's local IP address and port number.
- If you intend to access your camera from the Internet, you must use each camera's host name (global IP address) and the port number.

4. Click [Save] when finished.

- The new settings are saved.
- The Multi-Camera Setup page is displayed.

5.3 Specifying Operation Time

The Operation Time page allows you to limit the time that the camera is in use. The camera image turns to a gray screen outside operation time.

Note

- Your privacy may be compromised if the time period is set incorrectly. Confirm the time period after the setup.
- If you access the camera as an administrator, you can view the image outside the time period.

1. Click [Operation Time] on the Setup page.

2. Click a **No.** to set the operation time.

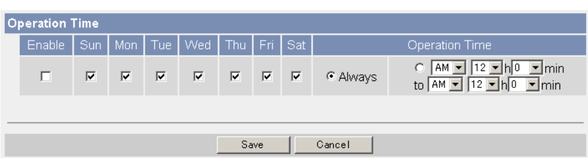
Operation Time

No.	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Operation Time
1	Disable	X	X	X	X	X	X	X	Always
2	Disable	X	X	X	X	X	X	X	Always
3	Disable	X	X	X	X	X	X	X	Always
4	Disable	X	X	X	X	X	X	X	Always
5	Disable	X	X	X	X	X	X	X	Always
6	Disable	X	X	X	X	X	X	X	Always
7	Disable	X	X	X	X	X	X	X	Always

Note

- If No. 1—7 are disabled, the camera can always be operated.

3. Check [Enable], set the time, and click [Save].



- Clicking [Cancel] takes you back to the previous page without saving changes.

Setting	Description
Enable	• Check the box to enable the setting. Uncheck the box to disable it.
Day of the week	• Check the box to enable the day. Uncheck the box to disable it.
Operation Time	• To set an operation time, check the time option and set a time period. Check the [Always] option if you are not specifying a time period.

4. Click [Save] when finished.

- The new settings are saved.
- The Operation Time page is displayed.

About Operation Time

In the operation time settings, the enabled settings take priority over the disabled settings. Therefore, if Monday or Tuesday is disabled in a setting but enabled in other settings, the camera can be operated on both Monday and Tuesday.

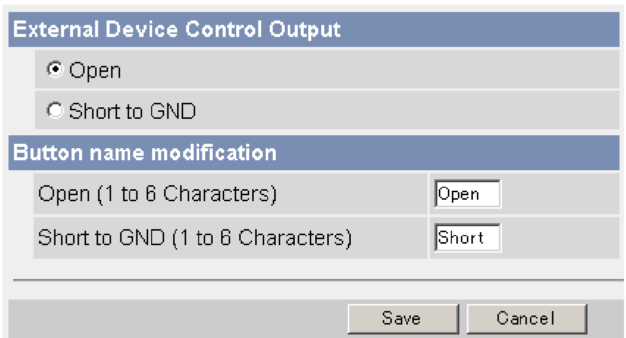
No.	Status	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Operation Time
1	Enable	X	X		X	X	X	X	Always
2	Enable	X		X	X	X	X	X	Always

5.4 Controlling External Output

The external output terminal allows you to control the external devices. You can also change the initial status of the output signal.

1. Click [External Output] on the Setup page.

2. Click [Save] when finished.



- Clicking [Cancel] cancels your settings without saving changes.
- The new settings are saved.
- When finished, "Success!" is displayed.

Setting	Description
External Device Control Output	• If you check [Open], the internal transistor turns off and the external output terminal gets high impedance (open collector) when the camera powers up. If you check [Short to GND], the internal transistor turns on and is electrically short-circuited to GND pin when the camera powers up. The external output terminal gets low impedance (0 V).
Button name modification	• You can change the output control button names on the operation bar. You can name the button depending on your external devices.

3. Click [Go to External Output Control page].

- The External Output Control page is displayed.

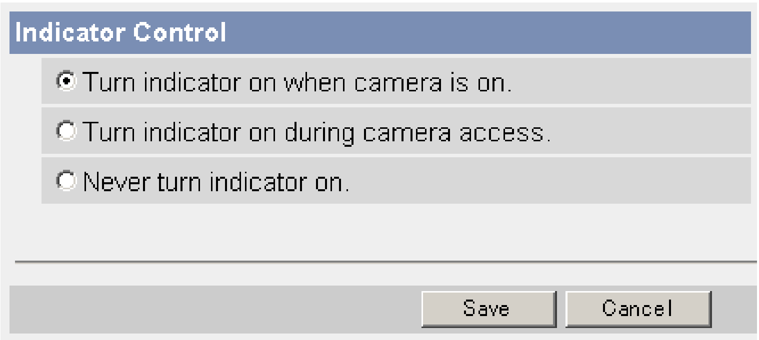
5.5 Changing the Indicator Display

The Indicator Control page allows you to select an operation for the indicator. There are three options.

- Always on
- Turn the indicator on when the camera is accessed.
- Always off

1. Click [Indicator Control] on the Setup page.

2. Select an option.



- To turn indicator always on, check [Turn indicator on when camera is on] (see page 8).
- To turn indicator when the camera is accessed, check [Turn indicator on during camera access].
- To turn indicator always off, check [Never turn indicator on].
- Clicking [Cancel] cancels your settings without saving changes.

Note

- Selecting [Never turn indicator on] keeps indicator always off even if the camera is connected to a network.

3. Click [Save] when finished.

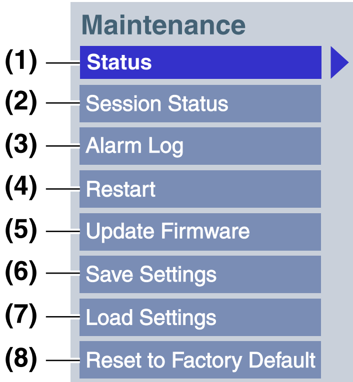
- The new settings are saved.
- When finished, "Success!" is displayed.

4. Click [Go to Indicator Control page].

- The Indicator Control page is displayed.

6 Camera Maintenance

6.1 Maintenance page



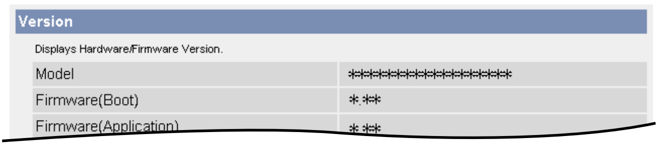
Maintenance

(1)	**Status**	Displays the camera settings and status (see page 142).
(2)	**Session Status**	Displays information on access to the camera (see page 142).
(3)	**Alarm Log**	Displays alarm logs (see page 143).
(4)	**Restart**	Restarts the camera (see page 144).
(5)	**Update Firmware**	Updates the camera firmware (see page 145).
(6)	**Save Settings**	Creates a configuration file (see page 147).
(7)	**Load Settings**	Loads settings from a configuration file (see page 148).
(8)	**Reset to Factory Default**	Resets the camera to its default settings (see page 149).

6.1.1 Confirming the Status

The Status page allows you to check the status of the camera. The status information provides support for troubleshooting.

Clicking [Status] displays the following page.



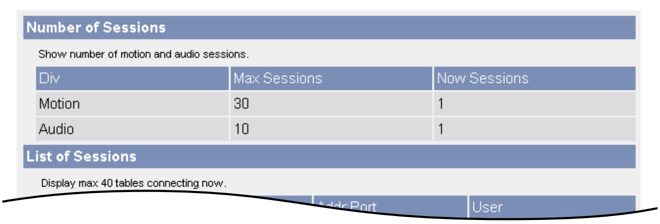
Note

- See the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/** for details about status information.

6.1.2 Confirming Session Status

Displays the information of clients connected to the camera.

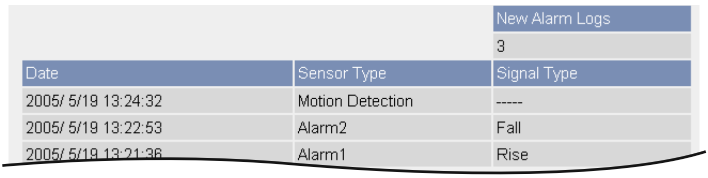
Clicking [Session Status] displays the following page.



6.1.3 Confirming Alarm Logs

Displays up to 50 Alarm Logs in chronological order. Old logs will be overwritten by new ones.

1. Click [Alarm Log] on the Maintenance page.
2. Alarm Logs are displayed.



		New Alarm Logs
		3
Date	Sensor Type	Signal Type
2005/ 5/19 13:24:32	Motion Detection	-----
2005/ 5/19 13:22:53	Alarm2	Fall
2005/ 5/19 13:21:36	Alarm1	Rise

Note

- If the camera is restarted, all alarm logs are deleted.

Item	Description
New Alarm Logs	• Displays the number of new alarm logs.
Date	• Displays the date and time when the Alarm 1, 2, or Motion Detection were activated.
Sensor Type	• Displays the Trigger Setting (Alarm 1, 2, or Motion Detection) on the Trigger page.
Signal Type	• Displays the Alarm enable condition on the Trigger page when selected Alarm 1 or 2.

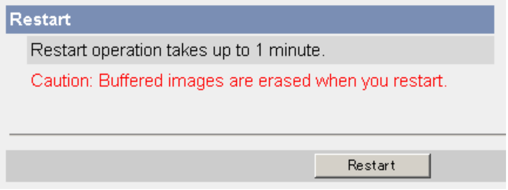
6.1.4 Restarting the Camera

It is possible to restart the camera by turning the camera off and turning the camera on again. The camera can also be restarted on the Restart page.

Note

- When the camera is restarted, the buffered images will be deleted. The buffered images on the SD memory card are not deleted.
- If the camera is restarted, all alarm logs are deleted.

1. Click [Restart] on the Maintenance page.
2. Click [Restart].



- Restarting takes about 1 minute. The Top page is displayed when finished.

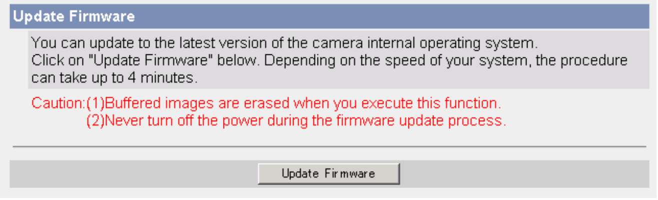
6.1.5 Updating the Camera Firmware

The Update Firmware page allows you to update the camera's firmware. If new firmware is available, install it into the camera.

Note

- Do not turn off the power during a firmware update.
- All buffered images on the internal memory will be deleted after the firmware update. The buffered images on the SD memory card are not deleted.
- The firmware version is displayed on the Top page and the Status page.
- If the camera's firmware is updated, all alarm logs are deleted.

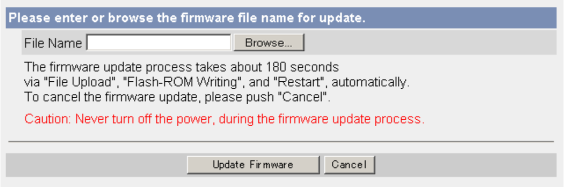
1. Download the new firmware from the Panasonic Network Camera support website at **http://panasonic.co.jp/pcc/products/en/netwkcam/**, and save it on your PC.
2. Click [Update Firmware] on the Maintenance page.
3. Click [Update Firmware].



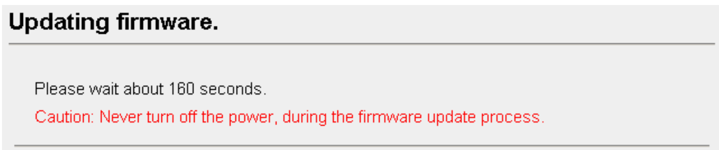
- The camera restarts.



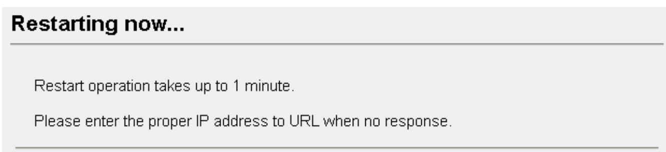
- The Update page is displayed after about 1 minute.



4. Click [Browse...].
   - A dialog box is displayed to select the firmware.
5. Select the firmware (including directory information) and click [Open].
   - The firmware file name is displayed.
6. Confirm the firmware file name, and click [Update Firmware].
   - Clicking [Cancel] takes you back to the Top page without updating the firmware.
   - The following message is displayed during the update.



   - The camera restarts automatically after the update.



   - The Top page is displayed after about 1 minute.
7. Confirm that the version number on the Top page is updated.



Updated version

   - If the version number is updated, the firmware update is complete.

6.1.6 Creating the Configuration File

A configuration file can be saved on your PC. You can load camera settings from the configuration file on the Load Settings page (see page 148).

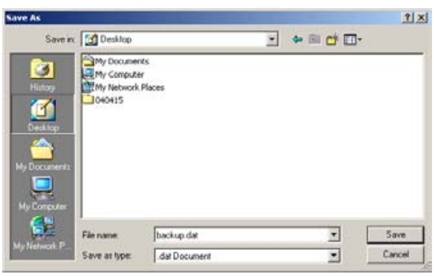
Note

- The saved image contains private information. It is important to prevent leaks of private information.

1. Click [Save Settings] on the Maintenance page.
2. Click [Save].



3. Click [Save] on the File Download dialog box.
4. Specify the location, and click [Save] on the Save As dialog box.



- The configuration file is saved at that location.

Note

- The file extension (.dat) cannot be changed. If you change it, the settings cannot be loaded.
- If you try to updating the camera, create a configuration file after updating the firmware. If there is a firmware version difference between the camera that you create a configuration file from and the camera that you try to load settings to, the settings may not have been loaded to the camera.

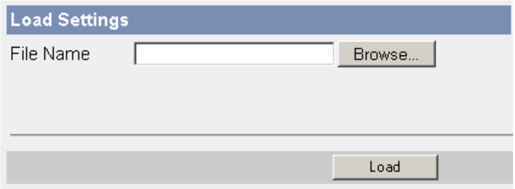
6.1.7 Loading Settings from a Configuration File

Camera settings can be loaded from a configuration file. If you reset the camera to factory default, the camera can load previously used settings from a configuration file.

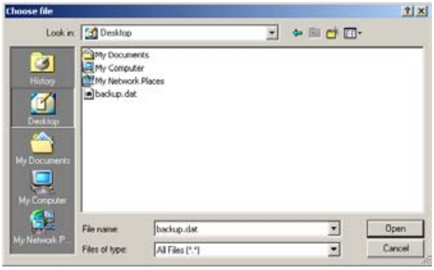
Note

- The configuration file also saves network settings. When settings are loaded, the network settings are also loaded.
- If you try to update the camera, create a configuration file after updating the firmware. If there is a firmware version difference between the camera that you create a configuration file from and the camera that you try to load settings to, the settings may not have been loaded to the camera.

1. Click [Load Settings] on the Maintenance page.
2. Click [Browse...].



3. Select the configuration file on the Choose file dialog box, and click [Open].



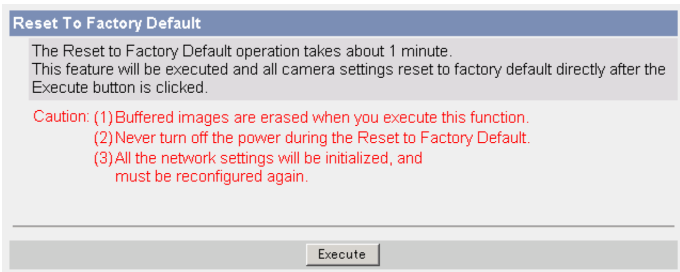
- The file name is displayed in the data field.

4. Confirm the file name, and click [Load].
5. Click [Restart].
   - The camera restarts, and the Top page is displayed.

6.1.8 Resetting the Camera to Factory Default

All camera settings are reset to factory default when the Execute button is clicked.

1. Click [Reset to Factory Default] on the Maintenance page.
2. Click [Execute].



- The indicator blinks orange, and then turns off for 10 seconds.
- All camera settings (user name, password, IP address, subnet mask etc.) are reset to factory default.
- If the camera is reset to factory default, the network connection mode changes to [Automatic Setup]. Reconfigure the camera referring to Getting Started.

Note

- The internal clock will not be reset, but the time format will return to AM/PM mode. To change it to 24-h format, see page 67.
- See page 166—page 175 for the default settings.
- Pressing the FACTORY DEFAULT RESET button resets the camera to factory default (see page 153).
- All buffered images on the internal memory are deleted when resetting the camera to factory default. The buffered images on the SD memory card are not deleted.
- If the camera is restarted, all alarm logs are deleted.
- The process of resetting to default takes about 1 minute. During that time, do not turn the power off.

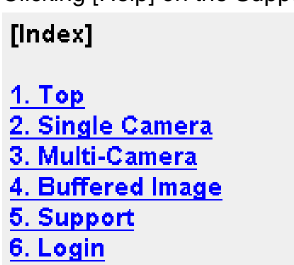
6.2 Support page



Support		
(1)	**Help**	Displays the Help page (see below).
(2)	**Product Information**	Displays the product information website (see below).
(3)	**Support Information**	Displays the support information website (see below).

6.2.1 The Help page

The Help page displays explanations for each of the following features.
Clicking [Help] on the Support page displays the following page.



6.2.2 Product Information

See the Panasonic Network Camera support website for product information.
Clicking [Product Information] on the Support page displays the URL, click it.

Note

- If the camera is not connected to the Internet, the website cannot be displayed.

6.2.3 Support Information

See the Panasonic Network Camera support website for support information.
Clicking [Support Information] on the Support page displays the URL, click it.

Note

- If the camera is not connected to the Internet, the website cannot be displayed.

6.3 External I/O

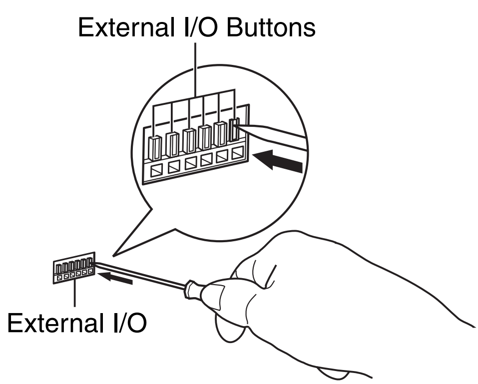
If you connect external devices such as sensors to the External I/O, and image buffer/transfer by alarm signal is set, the camera image is transferred by alarm detection.

Explanation of the External I/O

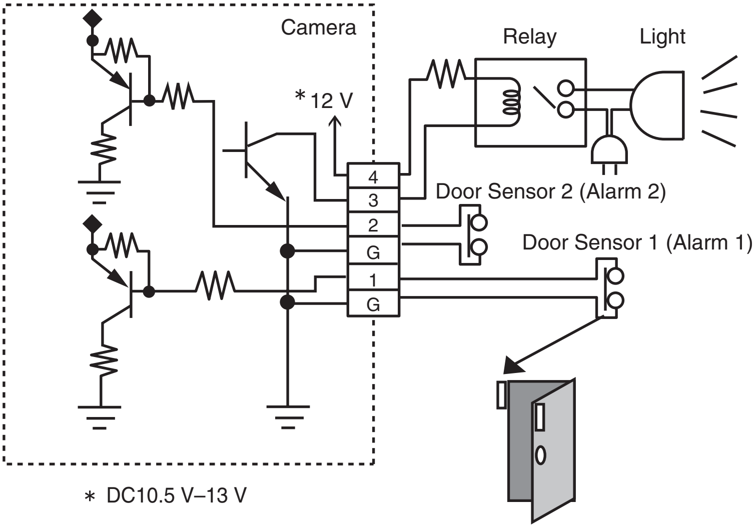
Pin	Features
G	GND pin
1	External Sensor Input 1 • Use it by opening or GND short-circuit.
G	GND pin
2	External Sensor Input 2 • Use it by opening or GND short-circuit.
3	External Device Control Output • You can control this on the External Output page (see page 139). • It is an open collector circuit, and the maximum drawing-in current is the same as pin 4. Do not exceed the voltage of DC power output terminal (pin 4).
4	DC Power Output Terminal • 10.5—13 V DC • A maximum of 100 mA load drive is possible.

Note

- The External I/O (Input/Output) are independent. Output terminal is controlled only by External Output Control page on page 139.
- Do not push strongly on the External I/O with the pointed object. The External I/O may get stuck into the unit, and you may not be able to use it.



Circuit Diagram Example



CAUTION

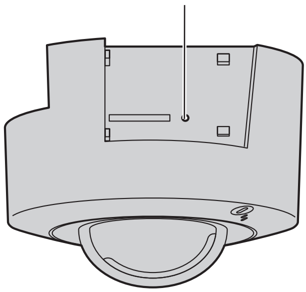
- **The external I/O is not capable of connecting directly to devices that require large amounts of current. In some cases, a custom interface circuit (customer-provided) may have to be used. Serious damage to the camera may result if a device that exceeds its electrical capability is connected to the external I/O (see page 151).**
- **Low voltage/current circuits and high voltage/current circuits are used in the camera circuit. All wiring should be performed by a qualified electrician. Incorrect wiring could damage the camera and cause a fatal electric shock.**

7 Other Information

7.1 FACTORY DEFAULT RESET Button

There is a FACTORY DEFAULT RESET button on the side of the camera.

FACTORY DEFAULT RESET button
(Press the button with a pointed object)



Pressing the FACTORY DEFAULT RESET button resets the camera to factory default. If you lose your user name and password, use this button to reset the camera.

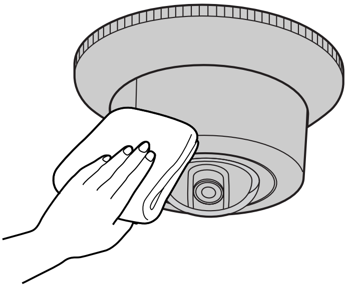
- To reset the camera, press the FACTORY DEFAULT RESET button for 1 second when the camera is on.
- The indicator blinks orange, and then turns off for 5 seconds.

Note

- The internal clock will not be reset, but the time format will return to AM/PM mode. To change it to 24-h format, see page 67.
- See page 166 for the default settings.
- All buffered images on the internal memory are deleted when resetting the camera to factory default. The buffered images on the SD memory card are not deleted.
- If the camera is reset to default, all alarm logs are deleted.
- The process of resetting to default takes about 1 minute. During that time, do not turn the power off.

7.2 Cleaning

After turning off the camera (see page 10), clean the camera. If the lens cover has the dust, image quality may decrease. After taking away the dust on it, wipe it with a dry cloth.



Note

- Do not use alcohol, polishing powder, cleanser, benzine, thinner, wax, petroleum products or hot water to wipe the camera. Also avoid glass cleaner, pesticide or hair spray. They may cause change in the shape or color.
- Do not directly touch the lens cover. Your fingerprints can cause the image to be out of focus.

7.3 Setting an IP Address on Your PC

Your PC's IP address can be assigned by following the procedures below.

1. Display the TCP/IP Properties window.

- The steps are different depending on your OS.

OS	Steps
Windows XP	[Start] (→[Settings])→[Control Panel]→[Network and Internet Connections]→[Network Connections]→[Local Area Connection] in use→[Properties]→Select Internet Protocol [TCP/IP]→[Properties]→[Use the following IP address]
Windows 2000	[Start]→[Settings]→[Control Panel]→[Network and Dial-up Connections]→[Local Area Connection] in use →[Properties]→Select Internet Protocol [TCP/IP] →[Properties]→[Use the following IP address]
Windows Me, Windows 98SE	[Start]→[Settings]→[Control Panel]→[Network]→Select [TCP/IP] with adaptor in use→[Properties]→[IP Address] →[Specify an IP address]

- When using Windows XP and Windows 2000, log in as an administrator to access the TCP/IP Properties window.

2. Enter the IP address and subnet mask.

3. Click [OK].

- In Windows Me or Windows 98SE, the PC needs to be restarted to enable the settings.

Local IP Address

A local IP address is a network ID that is not used on the Internet. Local IP Addresses are classified into Class A, Class B and Class C, as shown below. Set an IP address within the range specified in the class corresponding to your local network.

Class	Subnet Mask	Local IP Address		
Class A	255. 0. 0. 0	10. 0. 0. 1	—	10. 255. 255. 254
Class B	255. 255. 0. 0	172. 16. 0. 1	—	172. 31. 255. 254
Class C	255. 255. 255. 0	192. 168. 0. 1	—	192. 168. 0. 254

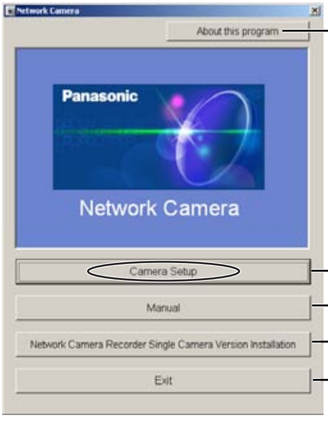
7.4 Using Setup Program

The Setup Program can be used for the following purposes.

- Finding the IP address and port number of the camera connected to your network.
- Setting up the camera automatically.
- Setting up the camera name manually. Also, setting up to a Static or a DHCP setting.
- Disabling IPsec.
- Displaying the Setup page.

Finding the camera

1. Insert the CD-ROM into the CD-ROM drive of your PC.
   - If the Panasonic Network Camera Setup window does not appear, click "setup.exe" on the CD-ROM.
2. Click [Camera Setup].



Displays version information about this program.

Sets up the camera.

Displays the camera manuals.

If your PC does not have Adobe® Acrobat® Reader®, install it from the Adobe Reader website.

Installs the Network Camera Recorder Single Camera Version.

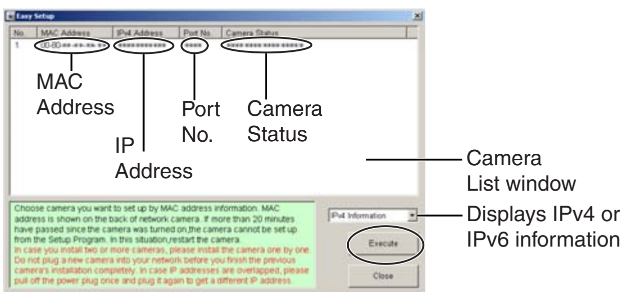
Closes the Setup Program.

- If the following dialog box is displayed, click [Unblock].

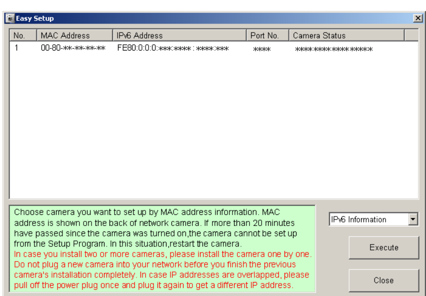


- You can find the camera IP address and port number by looking up the MAC address of your camera.

IPv4 Information



IPv6 Information

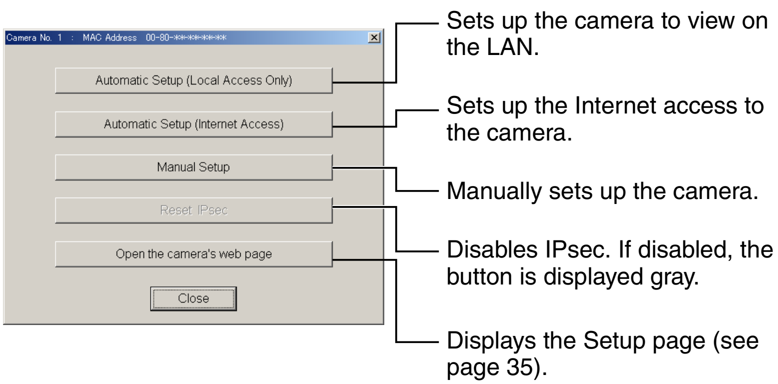


Note

- When trying to find multiple cameras, the MAC address on the bottom of the camera verifies which camera you are setting up.
- See page 159 for details about setup from the MAC address.

Automatic Setup (Local or Internet Access) or Manual Setup

1. Click [Execute] on the Camera List window shown on page 157.
2. Click the corresponding button.



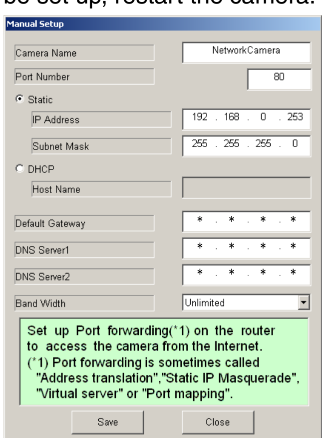
Note

- See Getting Started for local and Internet access setup.

Manual Setup window

Set up each parameter referring to page 40—page 42.

- If more than 20 minutes have passed since the camera was turned on, the camera cannot be set up from the Setup Program. If the camera cannot be set up, restart the camera.



- If "Camera setup completed" is displayed, click [Close] to finish the Manual Setup.

3. Close all Setup windows.

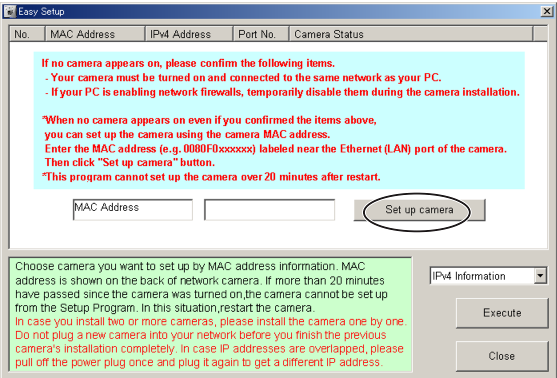
Setting up the Camera Using the MAC Address on the Setup Program

The Setup Program may not list any cameras due to your firewall or antivirus software settings on your PC. If you cannot disable your firewall or antivirus software, you can set up the camera using the camera MAC address as shown below.

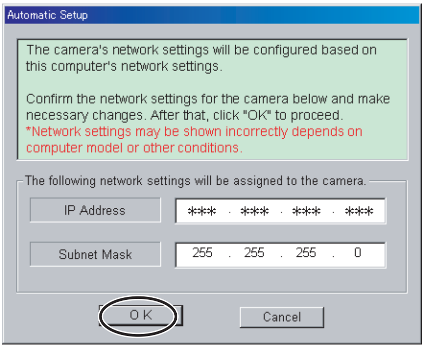
1. Enter the camera MAC address in the data field, and click [Set up camera].

Note

- The camera's MAC address can be found on the sticker affixed to the bottom of the camera (see page 9).

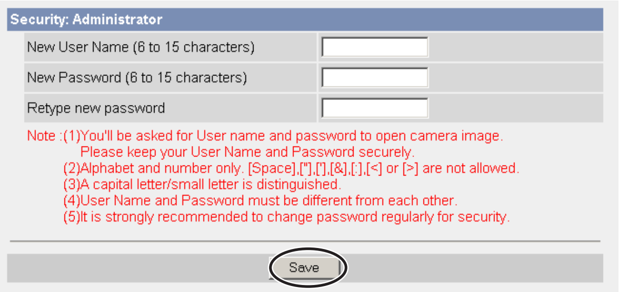


2. After confirming the network settings, click [OK].

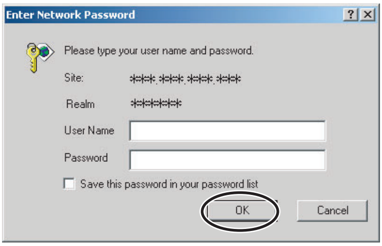


- After about a minute, the Security: Administrator page is displayed.

3. Enter the user name and password, and click [Save].

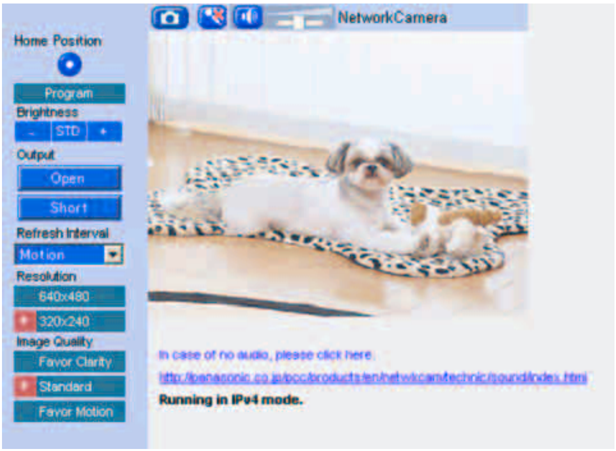


4. The Enter Network Password window is displayed. Enter the user name and password that you set above, and click [OK].



5. When the Single Camera page is displayed, the setup is complete.

- If a Security Warning window is displayed, click [Yes] (see page 17).
- See page 18 for Security Warning window when using Microsoft Windows XP Service Pack 2.



Note

- See page 15 for the Single Camera page.
- If you will enable Internet access to the camera, follow the procedures below.
- **When you are using a router that supports UPnP™**

  1. Enable the Auto Port Forwarding feature on the UPnP page (see page 57)
  2. Register with the DynamicDNS service on the DynamicDNS page (see page 60)
  3. Confirm that the camera can be accessed from the Internet (see page 11). If you cannot access the camera, see page 10 of Troubleshooting on the CD-ROM.
- **When you are using a router that does not support UPnP™**
  Follow the procedures shown on page 58.

7.5 Setting Your PC

7.5.1 Setting Proxy Server Settings on a Web Browser

If a proxy server is not used, these settings are not required. If you are using a proxy server, perform the proxy server settings below.

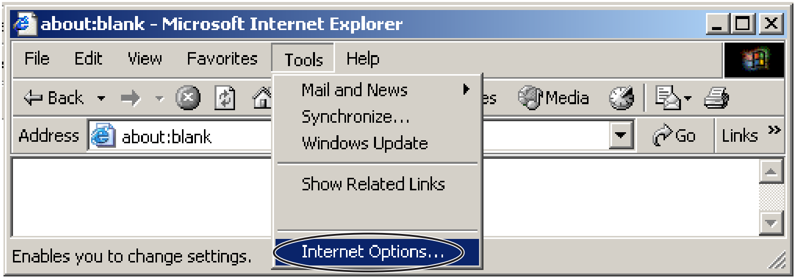
- To communicate with a camera installed within a LAN, changing the web browser settings is recommended.
- The firewall of a proxy server in a corporate environment may prevent access to the camera. Consult your network administrator.

Note

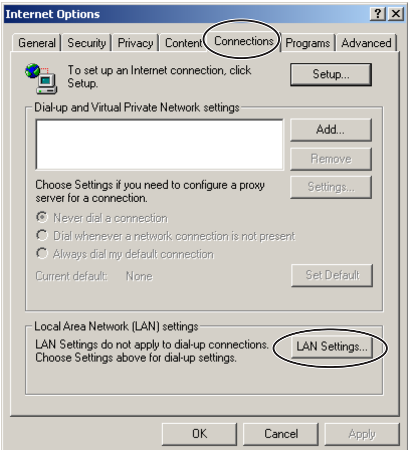
- A proxy server is used to protect your network when connected to the Internet.
- The video and audio features cannot be used when the camera is accessed through a proxy server requiring authentication.
- If the camera is accessed via a proxy server, problems may occur. Consult your network administrator before installing the camera.
- If the camera is accessed via a proxy server, the refresh interval may be increased.

How to Set Proxy Server Settings

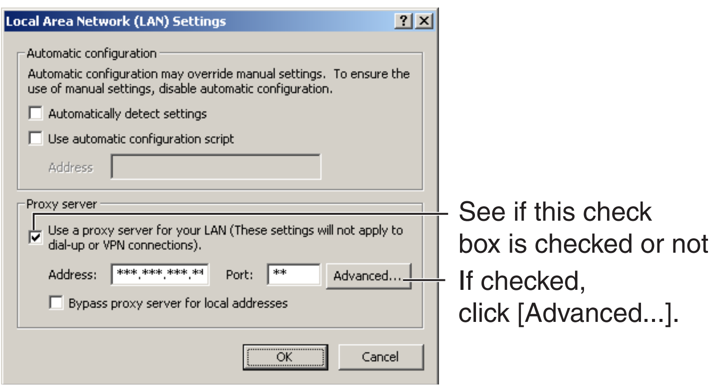
1. Start up Internet Explorer. (The example is Internet Explorer 6.0.)
2. Click [Tools]→[Internet Options...].



3. Click the [Connections] tab, and click [LAN Settings].

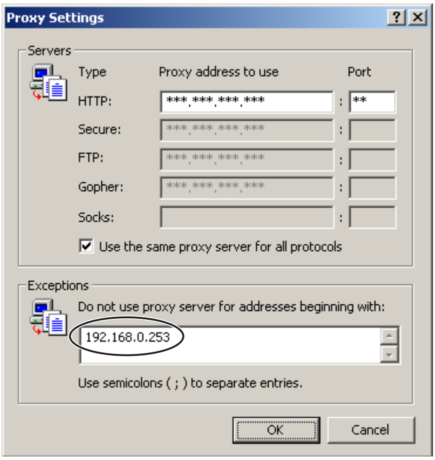


4. See if the Use a proxy server for your LAN check box is checked or not. If checked, click [Advanced...].



- If not checked, click [Cancel]. Proxy settings are not required.

5. Enter the camera's IP address into the Do not use proxy server for addresses beginning with data field. (Example: 192.168.0.253)



6. Click [OK].

Note

- When accessing the camera via a proxy server, the Talk Button is gray. The Talk feature cannot be used.

7.5.2 Setting UPnP™ to Display Camera Shortcut in My Network Places

To display the camera shortcut in the My Network Places folder, a Windows component should be added. Enable UPnP™ (Universal Plug and Play) following the steps below.

OS	Steps
Windows XP	[Start] (→[Settings])→[Control Panel]→[Add or Remove Programs]→[Add/Remove Windows Components]→Select [Networking Services]→[Details]→Check [UPnP User Interface]→[OK]→[Next]→Complete
Windows XP Service Pack 2	[Start] (→[Settings])→[Control Panel]→[Add or Remove Programs]→[Add/Remove Windows Components]→Select [Networking Services]→[Details]→Check [Internet Gateway Device Discovery and Control Client] and [UPnP User Interface]→[OK]→Complete
Windows Me	[Start]→[Settings]→[Control Panel]→[Add/Remove Programs]→[Windows Setup] tab→Select [Communication] →[Details]→Check [Universal Plug and Play]→[OK]→[OK] →[Restart]→Complete

Note

- This feature is only available when using Windows XP or Windows Me.

7.5.3 Setting the Internet Temporary File Setting on the Web Browser

An old image may be displayed. In this case, change the web browser settings following the steps below.

[Tools]→[Internet Options]→[General] tab→[Settings] in the Temporary Internet files→Check [Every visit to the page] in the Check for newer versions of stored pages→[OK]→[OK]→Complete

7.6 Default Setting List

Basic

Items		Default	Required	Note
Network (IPv4)	Connection Mode	Automatic Setup	-	Automatic Setup/Static/ DHCP
	Allow Access from the Internet (Automatic Setup only)	No	-	-
	Network Configuration from Setup Program (Static/DHCP only)	Enable	-	-
	Port No. (Static/DHCP only)	80	-	20, 21, 25 and 110 is not available*2
	IP address (Static only)	192.168.0. 253	When setting Static	*1
	Subnet Mask (Static only)	255.255. 255.0	When setting Static	*1
	Host Name (DHCP only)	[Blank]	When setting DHCP (Not always required)	0—63 characters*4
	Default Gateway (Static/DHCP only)	[Blank]	When using Gateway	*1
	DNS Server 1 DNS Server 2 (Static/DHCP only)	[Blank]	When using DNS	*1
	Max. Bandwidth Usage (Mbps)	Unlimited	-	0.1, 0.2, 0.3, 0.5, 1 or Unlimited
	Connection Type	Auto Negotiation	-	Auto Negotiation, 100 Mbps/Full Duplex, 100 Mbps/Half Duplex, 10 Mbps/Full Duplex, 10 Mbps/Half Duplex

Items		Default	Required	Note
Network (IPv6)	Connection Mode	Automatic Setup	-	Automatic Setup/Static
	Allow Access from the Internet (Automatic Setup only)	No	-	-
	Port No. (Static only)	80	-	20, 21, 25 and 110 is not available*2.
	IP address (Static only)	[Blank]	When setting Static	*1
	Default Gateway (Static only)	[Blank]	When using Gateway	*1
	DNS Server 1 DNS Server 2	[Blank]	When using DNS	*1
	Max. Bandwidth Usage (Mbps)	Unlimited	-	0.1, 0.2, 0.3, 0.5, 1 or Unlimited
	Connection Type	Auto Negotiation	-	Auto Negotiation, 100 Mbps/Full Duplex, 100 Mbps/Half Duplex, 10 Mbps/Full Duplex, 10 Mbps/Half Duplex
IPsec	Use	No check	-	-
	Encoding strength	Standard (AES, 3DES, DES, NULL)	-	Standard/High
	Transport	[Blank]	-	-
	Tunnel	[Blank]	-	-
UPnP	Auto Port Forwarding	Disable	-	-
	Display Shortcut Icon in My Network Places	Enable	-	-

Items		Default	Required	Note
Dynamic DNS	DynamicDNS	Disable	-	Viewnetcam.com /User-specified DynamicDNS/ Disable
	DynamicDNS Server URL	[Blank]	When using User-specified DynamicDNS	1—255 characters*8
	Updating time	10 min		At the time of starting/10, 30(min), 1, 3, 6, 12, 24(h)
	User Name	[Blank]		0—63 characters
	Password	[Blank]		0—63 characters
Date and Time	Time Setting	AM/PM	-	AM/PM/24 H
	Automatic Time Adjustment	No check	When using NTP	-
	NTP Server Address or Host Name	[Blank]		1—255 characters*4
	Time Zone	GMT -05:00	-	-
	Adjust Clock for Daylight Saving Time	No check	-	-
	Start Day	Apr, First Sunday, 2 AM	-	-
	End Day	Oct, Last Sunday, 2 AM	-	-
Camera	Camera Name	Network Camera	Required	1—15 characters*6
	White Balance	Auto	-	Auto/Fixed Indoor/Fixed Fluorescent (White)/Fixed Fluorescent (Daylight)/ Fixed Outdoor/ Hold
	Color Night View	Disable	-	-

Items		Default	Required	Note
Audio	Output	Enable	-	-
	Volume	Standard	-	Minimum/ Standard/ Maximum
	PC Audio Input Timeout	1 min	-	1, 2, 3, 5, 10, 20, 30, 60 (min)
	Input	Enable	-	-
	Camera Microphone Sensitivity	Standard	-	Minimum/ Standard/ Maximum

Account

Items		Default	Required	Note
Security: Administrator	General Authentication	Do not permit access from guest users	-	-
	User Name	[Blank]	When setting administrator	6—15 characters*3
	Password	[Blank]	When setting administrator	6—15 characters*3
	Retype Password	[Blank]	When setting administrator	6—15 characters*3
General User	User ID List	[Blank]	-	-
	User Name	[Blank]	When setting general user	6—15 characters*3
	Password	[Blank]	When setting general user	6—15 characters*3
	Retype Password	[Blank]	When setting general user	6—15 characters*3
	Limit time of Continuous Motion JPEG	Not permitted	-	Not permitted, Unlimited, 10, 30 (s), 1, 5, 10, 30, 60 (min)
	Refresh Interval	3 s	-	3, 5, 10, 30, 60 (s)
	Access Level	No checks	-	-

Buffer/Transfer

Items		Default	Required	Note
Trigger	Status	Off	-	-
	Trigger	Timer	-	Timer/Alarm1/ Alarm2/Motion Detection
	Active Time of Trigger	Always	-	-
	Image Setting (Image Resolution)	320 x 240	-	160 x 120, 320 x 240, 640 x 480
	Image Quality	Standard	-	Favor Clarity, Standard, Favor Motion, Mobile phone
	Image Buffer Frequency	Every 1 s, buffer 1 image.	-	1 image per hour—30 images per second
	Transfer Method	No Transfer, No Memory Overwrite	-	-
	Notify	Disable	When selecting Alarm1, Alarm2 or Motion Detection	-
Motion Detection	Threshold	Third blocks from the left	-	-
	Sensitivity	Center	-	-

Items		Default	Required	Note
Alarm Log	A setup of operation	Disable	When selecting Alarm1, Alarm2 or Motion Detection in Trigger.	Disable/ Enable(When there is no new-arrival alarm log:Disable)/ Enable(When there is no new-arrival alarm log:Enable)
	Active Time	Checked		AM/PM, 1–12 (h), 0/10/20/30/ 40/50 (min)
	Time	PM 12 h 0 min		-
	Notice setup of an alarm log	[Blank]		-
	Port No. (SMTP)	25		*2
	Port No. (POP)	110		*2
	Subject	Alarm Log		-
	How to authenticate	No authentication	-	No authentication/ POP before SMTP authentication/ SMTP authentication

Advanced

Items		Default	Required	Note
Image Display	Single Camera Image Resolution	320 x 240	-	320 x 240 or 640 x 480
	Single Camera Image Quality	Standard	-	Favor Clarity, Standard or Favor Motion
	Single Camera Refresh Interval	Motion	-	3, 5, 10, 30, 60 (s) or Motion
	Multi-Camera Image Resolution	320 x 240	-	160 x 120 or 320 x 240
	Multi-Camera Image Quality	Standard	-	Favor Clarity, Standard or Favor Motion
	Multi-Camera Refresh Interval	Motion	When reducing traffic	3, 5, 10, 30, 60 (s) or Motion
	Time stamp setting	Disable	-	Enable/Disable
	Language	English	-	English/ Japanese/ French/German/ Italian/Spanish/ Simplified Chinese/ Russian/Korean
	Banner Display Enable	No check	When displaying the banner	-
	Banner user	All users	-	All users/ Administrator only/General user only
	Image URL	[Blank]	-	0—127 characters*4
	Link URL	[Blank]	-	1—127 characters*4

Items		Default	Required	Note
Multi-Camera	Multi-Camera	No.1 Selfcamera	-	-
	Display	Checked	When setting Multi-Camera	-
	IP Address or Host Name	selfcamera	When setting Multi-Camera	IP address[*1] Host name[*5] is 1—255 characters.
	Port No.	- -	When setting Multi-Camera	20, 21, 25 and 110 are not available[*2].
	Camera Name	BB-HCM403A	When setting Multi-Camera	1—15 characters[*7]
	Change Camera Order	From No.1 To No.1	-	No.1–No.12
Operation Time	Operation Time	Always	-	-
External Output	External Device Control Output	Open	-	Open/Short to GND
	Button name modification	Open/Short	-	-
Indicator Control	Indicator Control	Turn indicator on when camera is on	-	-

[*1] In IPv4, set 4 numbers (0—255) and 3 periods, by such as "192.168.0.253". Note that "0.0.0.0" and "255.255.255.255" are not available.
In IPv6, set 8 hexadecimal number divided by ":". Consecutive 0s can be abbreviated as "::". (E.g. 2001:2:3:4::5)

[*2] Set the number of 1—65535.

[*3] Enter ASCII characters (see page 176). Note that [Space], ["], ['], [&], [<], [>] and [:] are not available.

[*4] Enter ASCII characters for the host name (see page 176). Note that [Space], ["], ['], [&], [<], and [>] are not available.

[*5] Enter ASCII characters for the host name (see page 176). Note that [Space], ["], ['], [#], [&], [%], [=], [+], [?], [<], and [>] are not available.

[*6] Enter ASCII characters (see page 176) or characters from other languages (1—15 characters for a 1-byte character and 1—7 characters for a 2-byte character). Note that [Space], ["], ['], [&], [<], and [>] are not available.

*7 Enter ASCII characters (see page 176) or characters from other languages (1—15 characters for a 1-byte character and 1—7 characters for a 2-byte character). Note that [Space], ["], ['], [#], [&], [%], [=], [+], [?], [<], and [>] are not available.

*8 ["] and [:] are not available.

7.7 ASCII Character Table

<table>
<tr><th colspan="6">ASCII Character Table</th></tr>
<tr><td>(space)</td><td>0</td><td>@</td><td>P</td><td>`</td><td>p</td></tr>
<tr><td>!</td><td>1</td><td>A</td><td>Q</td><td>a</td><td>q</td></tr>
<tr><td>"</td><td>2</td><td>B</td><td>R</td><td>b</td><td>r</td></tr>
<tr><td>#</td><td>3</td><td>C</td><td>S</td><td>c</td><td>s</td></tr>
<tr><td>$</td><td>4</td><td>D</td><td>T</td><td>d</td><td>t</td></tr>
<tr><td>%</td><td>5</td><td>E</td><td>U</td><td>e</td><td>u</td></tr>
<tr><td>&</td><td>6</td><td>F</td><td>V</td><td>f</td><td>v</td></tr>
<tr><td>'</td><td>7</td><td>G</td><td>W</td><td>g</td><td>w</td></tr>
<tr><td>(</td><td>8</td><td>H</td><td>X</td><td>h</td><td>x</td></tr>
<tr><td>)</td><td>9</td><td>I</td><td>Y</td><td>i</td><td>y</td></tr>
<tr><td>*</td><td>:</td><td>J</td><td>Z</td><td>j</td><td>z</td></tr>
<tr><td>+</td><td>;</td><td>K</td><td>[</td><td>k</td><td>{</td></tr>
<tr><td>,</td><td><</td><td>L</td><td>\</td><td>l</td><td>|</td></tr>
<tr><td>-</td><td>=</td><td>M</td><td>]</td><td>m</td><td>}</td></tr>
<tr><td>.</td><td>></td><td>N</td><td>^</td><td>n</td><td>~</td></tr>
<tr><td>/</td><td>?</td><td>O</td><td>_</td><td>o</td><td></td></tr>
</table>

7.8 File Size and Number of Buffered Images

The following table shows the relationship between the file size of the image and the maximum number of buffered images.

Note

- The following file sizes are shown at their maximum value.

Resolution	Items	Capture	Favor Clarity	Standard	Favor Motion	Mobile Phone*1
640 x 480 (pixels)	File Size	About 60 KB	About 50 KB	About 33 KB	About 20 KB	-
	Buffered Images	-	About 40	About 60	About 100	-
320 x 240 (pixels)	File Size	About 30 KB	About 25 KB	About 16 KB	About 8 KB	About 8 KB
	Buffered Images	-	About 80	About 125	About 250	About 250
160 x 120 (pixels)	File Size	About 10 KB	About 7 KB	About 5 KB	About 3 KB	About 3 KB
	Buffered Images	-	About 290	About 400	About 675	About 675

*1 The values shown are the file sizes when transferring to a cell phone.

The maximum number of Buffer/Transfer images

If the timer, alarm or motion detection trigger is enabled, the internal memory capacity is divided into the number of the triggers [maximum 5 triggers].

E.g.

At 320 x 240 pixels resolution and standard quality, the camera can buffer about 125 frames. If each timer, alarm and motion detection trigger is enabled, the internal memory is divided into 3 sections. In this case, each trigger can buffer about 40 frames.

7.9 Number of Images on the SD Memory Card

The camera supports the Panasonic SD memory card.

- 2 GB: RP-SDK02G
- 1 GB: RP-SDK01G
- 512 MB: RP-SDK512
- 256 MB: RP-SDH256
- 128 MB: RP-SD128B
- 64 MB: RP-SD064B

Resolution/ Image Quality		2 GB	1 GB	512 MB
160 x 120 (pixels)	Favor Motion	About 620,000	About 300,000	About 157,000
	Standard	About 370,000	About 180,000	About 94,000
	Favor Clarity	About 260,000	About 130,000	About 67,000
320 x 240 (pixels)	Favor Motion	About 230,000	About 110,000	About 58,000
	Standard	About 115,000	About 58,000	About 29,000
	Favor Clarity	About 70,000	About 37,000	About 18,000
640 x 480 (pixels)	Favor Motion	About 90,000	About 47,000	About 23,000
	Standard	About 55,000	About 28,000	About 14,000
	Favor Clarity	About 35,000	About 18,000	About 9,000

Resolution/ Image Quality		256 MB	128 MB	64 MB
160 x 120 (pixels)	Favor Motion	About 78,000	About 39,000	About 19,000
	Standard	About 47,000	About 23,000	About 11,000
	Favor Clarity	About 33,000	About 16,000	About 8,000
320 x 240 (pixels)	Favor Motion	About 29,000	About 14,000	About 7,000
	Standard	About 14,000	About 7,000	About 3,000
	Favor Clarity	About 9,000	About 4,000	About 2,000
640 x 480 (pixels)	Favor Motion	About 11,000	About 5,000	About 2,000
	Standard	About 7,000	About 3,000	About 1,000
	Favor Clarity	About 4,000	About 2,000	About 1,000

Unit: frame

7.10 Specifications

Network Camera

Items	Specifications
Tilt Angle	Tilt: 0° to +65°
Sensor Type	1/4-inch CCD (Interlace type), 320,000 pixels (Effective Pixels)
Illumination	3—100,000 lx (0.2—100,000 lx when in color night view mode)
White Balance	Auto/Manual/Hold
Focus	Fixed 0.5 m (20 inches)—infinity
Caliber Ratio (F No.)	F3.5
Horizontal Viewing Angle	53°
Vertical Viewing Angle	40°
Exposure	Auto

Other Specifications

Items	Specifications
Video Compression	JPEG (3 Levels)
Video Resolution	640 x 480, 320 x 240 (default), 160 x 120
Buffered Image*1	About 125 frames (320 x 240) with time display (When SD memory card is not inserted.)
Audio Communication	2-way Half Duplex
Audio Compression	ADPCM 32 Kbps
Audio Bandwidth	300 Hz—3.4 KHz
Audio Play Method	Play with ActiveX
Input Encoding Method	Encoding with ActiveX
Audio Input	Built-in Microphone or External Microphone Input Terminal
Audio Output*2	Audio Line Output Terminal for External Speaker
Frame rate*3	Max. 12 frames/second (640 x 480) Max. 30 frames/second (320 x 240 or 160 x 120)

Items	Specifications
Supported Protocols	IPv4/IPv6 Dual-Stack • IPv4: TCP, UDP, IP, HTTP, FTP, SMTP, DHCP, DNS, ARP, ICMP, POP3, NTP, UPnP™, IPsec • IPv6: TCP, UDP, IP, HTTP, FTP, SMTP, DNS, ICMPv6, POP3, NDP, NTP, IPsec
IPsec Feature	ESP Encryption, ESP Authentication Transport mode/Tunnel mode IKE (Internet Key Exchange)
IKE (Internet Key Exchange)	Pre-Shared Key
Cipher Algorithm	DES-CBC, 3DES-CBC, AES-CBC
Message-Digest Algorithm	HMAC-MD5, HMAC-SHA-1
Message Transfer Condition	Alarm, Timer or Motion Detection
Image Transfer Method	SMTP*4, FTP
Interface	10Base-T/100Base-TX Ethernet RJ-45 connector x 1
Indicator Display	Power/Network Communication/Camera operation/ Ethernet link
External Microphone Input	ø 3.5 mm Mini Jack
Audio Output	ø 3.5 mm Stereo Mini Jack (But output is mono.)
External I/O	External Sensor Input x 2 External Sensor Output x 1
SD Memory Card Slot	Full Size
Dimension (HWD)	97.5 (3 13/16 inches) mm x 123 (4 13/16 inches) mm x 123 (4 13/16 inches) mm
Weight	330 g (0.73 lb.) (Only the unit)
AC adaptor (Model No. BB-HCA2A: Option)	Input 120 V AC, 60 Hz Output 12 V DC, 0.75 A
Power Consumption	PoE: (48 V, IEEE 802.3af-compliant Power over Ethernet): About 5.5 W AC adaptor: About 5.8 W

Items	Specifications
Temperature	Operation: 0 °C (+32 °F) to +40 °C (+104 °F) Storage: 0 °C (+32 °F) to +50 °C (+122 °F)
Humidity	Operation: 20 %—80 % (No Condensation) Storage: 20 %—90 % (No Condensation)

*1 The maximum number of frames changes depending on the image quality and what object you buffer.
*2 Connect it to an amplifier or an external speaker with a built-in amplifier.
*3 Frame rate may slow down depending on the network environment, PC performance, image quality, SD memory recording, using IPsec or what object you view.
*4 POP before SMTP authentication and SMTP authentication (PLAIN and LOGIN) are supported. SMTP authentication (CRAM-MD5) is not supported.

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For product service

- Panasonic Servicenters are listed in the servicenter directory.
- Call 1-800-272-7033 for the location of an authorized servicenter.
- This Network Camera is designed for use in the United States of America. Sale or use of this product in other countries/areas may violate local laws.

When you ship the product

- Carefully pack your unit, preferably in the original carton.
- Attach a letter, detailing the symptom, to the outside of the carton.

Symptom ______________________________

____

- Send the unit to an authorized servicenter, prepaid and adequately insured.
- Do not send your unit to the Panasonic Consumer Electronics Company listed below or to executive or regional sales offices. These locations do not repair consumer products.

The information in this document is subject to change without notice.

Panasonic Consumer Electronics Company,
Division of Panasonic Corporation of North America
One Panasonic Way, Secaucus, New Jersey 07094

Panasonic Puerto Rico, Inc.
San Gabriel Industrial Park, Ave. 65 de Infantería, Km. 9.5,
Carolina, Puerto Rico 00985

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